Database Description	This maximum-rooting depth database provides information that can help assess whether groundwater dependent plants are accessing groundwater. Actual rooting depths will depend on the plant species and site-specific conditions, such as soil type and availability of other water sources. Site-specific knowledge of depths to groundwater combined with rooting depths will help provide an understanding of the potential groundwater levels needed to sustain GDEs. This database is a compilation of rooting depth information for the groundwater dependent plant species identified in the scientific literature. Rooting depth data were compiled from published scientific literature and expert opinion through a crowd sourcing campaign. As more information becomes available, the database of rooting depths will be updated. This database was compiled by The Nature Conservancy, California and published on April 19, 2018.
Disclaimers and limitation of liability	The database and all its data are “as is” and “as available” without warranty of any kind either express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose, freedom from contamination by computer viruses and malware, and non-infringement. The nature conservancy makes no warranty as to the accuracy, completeness or reliability of any data available through the database and the website. You are responsible for verifying any information before relying on it. Use o the website, database, and the data is at your sole risk. If you have obtained data from a source other than the groundwater resource hub web site, be aware that electronic data can be altered subsequent to original distribution. Data can also quickly become out-of-date. To the maximum extent permitted by law, the nature conservancy disclaims all liability, whether based in contract, tort (including negligence), strict liability or otherwise, and further disclaims all losses, including without limitation indirect, incidental, consequential, or special damages arising out of or in any way connected with access to or use of the website, database, or the data even if the nature conservancy has been advised of the possibility of such damages.
License	The California Natural Flows Database is made available under the Open Database License (http://opendatacommons.org/licenses/odbl/1.0/).

Field Name	**Description**
Scientific Name	Scientific name of the dominant species; if multiple entries then these are various values from the literature; "spp" indicates multiple species
Common Name	Common name of the dominant species (if applicable) of the mapped potential GDE vegetation type as reported in the cited study. Common name may be blank.
Family	Taxonomic family name as reported by the cited study. Family may be blank
Max Rooting Depth (m)	Maximum rooting depth (if known) in meters
Max Rooting Depth (feet)	Maximum rooting depth (if known) in feet
CA Phreatophytes	Species is considered a California phreatophyte if this field is set to 1. Based on lists compiled from three sources (Robinson, 1958; Lichvar & Dixon, 2007; Mathie et al., 2011)
Reference	Citation for the study or the meta study where the data are derivec
Location	State, Country or other geographic descriptor where the data were collected (if recorded in the study
Biome	Biome where the data were collected (if recorded in the study)
Soil Type	Soil type associated with the rooting data (if recorded in the study)
Growth Form	Plant growth form (if recorded in the study)
Method	Measurement method (if recorded in the study)
Life Span	Annual, biennial, perennial (if recorded in the study)
Lat	Latitude of the sample (if recorded in the study)
Long	Longitude of the sample (if recorded in the study)
USDA Soil Texture	(if recorded in the study)
Native vs Exotic	Species is native (1) or exotic (0) to the study site (if recorded in the study
GW Use	Study-specific observation of groundwater use (y/n) (if recorded in the study

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
2	Acacia greggii	Catclaw Acacia	Fabaceae	5.5	18.04	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
3	Acer negundo	Box-elder		2	6.56	1	Sprackling and Read,
4	Acer negundo	Box-elder		3.7	12.14	1	Sprackling and Read,
5	Acer negundo	Box-elder	Aceraceae	4	13.12	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
6	Adenostoma fasciculatum		Rosaceae	2.44	8.01	1	Hanes 1965
7	Adenostoma fasciculatum		Rosaceae	2.44	8.01	1	Hanes 1965
8	Adenostoma fasciculatum		Rosaceae	0.3	0.98	1	Miller & Ng 1977
9	Adenostoma fasciculatum		Rosaceae	1	3.28	1	Miller & Ng 1977
10	Adenostoma fasciculatum		Rosaceae	1	3.28	1	Miller & Ng 1977
11	Adenostoma fasciculatum		Rosaceae	7.62	25.00	1	Hellmers et al. 1955
12	Adenostoma sparsifolium		Rosaceae	1.83	6.00	1	Hanes 1965
13	Adenostoma sparsifolium		Rosaceae	2.44	8.01	1	Hanes 1965
14	Alhagi camelorum					1	
15	Allenrolfea occidentalis	pickleweed		0.61	2.00	1	Meinzer, 1927
16	Allenrolfea occidentalis	Iodine Bush		0.07	0.23	1	Trent, J.D., R.R. Blank, J.A. Young (1997) Ecophysiology of the Temperate Desert Halophytes: Allenrolfea occidentalis and Sarcobatus vermiculatus. Great Basin Naturalist 57(1), pp. 57-65
17	Allenrolfea occidentalis	Iodine Bush		1.8	5.91	1	Lech Naumovich. 2017 TNC Crowdsourcing Campaign Survey Response.
18	Alnus incana	Gray alder		0.7	2.30	1	Kutschera & Lichtenegger. 2002
19	Alnus incana ssp. tenuifolia	Mountain Alder				1	
20	Alnus rhombifolia	White Alder				1	
21	Alnus rubra	Red Alder				1	
22	Alnus spp.					1	
23	Alnus viridis			4	13.12	1	Kourik, R. 2015. Understanding Roots…discover how to make your garden flourish. Metamorphic Press, Occidental, CA.
24	Ambrosia dumosa	burroweed, white		0.5	1.64	1	Wallace et al., 1980
25	Ambrosia dumosa		Asteraceae	0.7	2.30	1	Fonteyn & Mahall 1981
26	Anemopsis californica	Yerba Mansa	Saururaceae	0.12	0.39	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
27	Aplopappus heterophyllus					1	
28	Artemisia tridentata	Big Sagebrush	Asteraceae	1.14	3.74	1	Klepper et al. 1985
29	Artemisia tridentata	Big Sagebrush	Asteraceae	1.7	5.58	1	Klepper et al. 1985
30	Artemisia tridentata	Big Sagebrush	Asteraceae	1.72	5.64	1	Klepper et al. 1985
31	Artemisia tridentata	Big Sagebrush	Asteraceae	1.87	6.14	1	Klepper et al. 1985
32	Artemisia tridentata	Big Sagebrush	Asteraceae	1.96	6.43	1	Klepper et al. 1985
33	Artemisia tridentata	Big Sagebrush	Asteraceae	2	6.56	1	Klepper et al. 1985
34	Artemisia tridentata	Big Sagebrush	Asteraceae	2.15	7.05	1	Klepper et al. 1985
35	Artemisia tridentata	Big Sagebrush	Asteraceae	2.19	7.19	1	Klepper et al. 1985
36	Artemisia tridentata	Big Sagebrush	Asteraceae	2.35	7.71	1	Klepper et al. 1985
37	Artemisia tridentata	Big Sagebrush	Asteraceae	2.45	8.04	1	Klepper et al. 1985
38	Artemisia tridentata	Big Sagebrush	Asteraceae	2.5	8.20	1	Klepper et al. 1985
39	Artemisia tridentata	Big Sagebrush	Asteraceae	3	9.84	1	Link et al. 1995
40	Artemisia tridentata	Big Sagebrush		2.3	7.55	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
41	Arundo donax	Giant Reed	Poaceae	4.9	16.08		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
42	Aster spinosus					1	
43	Atriplex canescens	four-wing saltbush		3.5	11.48	1	Gibbens and Lenz, 2001;
44	Atriplex canescens	four-wing saltbush		3.5	11.48	1	Gibbens and Lenz, 2001;
45	Atriplex canescens	four-wing saltbush		2.03	6.66	1	Lee and Laurenroth,
46	Atriplex canescens	four-wing saltbush		0.6	1.97	1	Wallace et al., 1980
47	Atriplex canescens	Four-wing saltbush	Chenopodiaceae	12	39.37	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
48	Atriplex confertifolia	shadscale		0.6	1.97	1	Wallace et al., 1980
49	Atriplex confertifolia	Shadscale		12	39.37	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
50	Atriplex hastata					1	
51	Atriplex hymenelytra					1	
52	Atriplex lentiformis	Quailbush				1	
53	Atriplex parryi	Parry's Saltbush				1	
54	Atriplex polycarpa					1	
55	Atriplex spinifera	Spinescale/Mojave Saltbush				1	
56	Baccharis emoryi					1	
57	Baccharis glutinosa	seep-willow baccharis		0.58	1.90	1	Gary, 1963
58	Baccharis pilularis	Coyote Brush	Asteraceae	3.2	10.50	1	Wright 1928
59	Baccharis pilularis	Coyote Brush	Asteraceae	3.2	10.50	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
60	Baccharis pilularis	Coyote Brush	Asteraceae	3.7	12.14	1	Lech Naumovich, restorationist. 2017 TNC Crowdsourcing Campaign Survey Response.
61	Baccharis salicifolia	Mule fat	Asteraceae	0.6	1.97	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
62	Baccharis sarothroides					1	
63	Baccharis sergiloides	Desert Baccharis				1	
64	Baccharis viminea					1	
65	Bigelovia hartwegii					1	
66	Carex acuta Glyceria	Acute Sedge		0.2	0.66	1	Dumortier, 1991
67	Carex aquatilis	water sedge		0.25	0.82	1	Shaver & Billlings, 1975
68	Carex barbarae	Santa Barbara Sedge				1	
69	Carex capillaris	hair-like sedge		0.029	0.10	1	Jonasson & Callaghan,
70	Carex douglasii					1	
71	Carex eleocharis	needle-leaf sedge		0.35	1.15	1	Coupland & Johnson, 1965
72	Carex eleocharis	needle-leaf sedge		0.35	1.15	1	Coupland & Johnson, 1965
73	Carex eleocharis	needle-leaf sedge		0.38	1.25	1	Coupland & Johnson, 1965
74	Carex eleocharis	needle-leaf sedge		0.5	1.64	1	Coupland & Johnson, 1965
75	Carex eleocharis	needle-leaf sedge		0.6	1.97	1	Coupland & Johnson, 1965
76	Carex eleocharis	needle-leaf sedge		0.65	2.13	1	Coupland & Johnson, 1965
77	Carex eleocharis	needle-leaf sedge		0.65	2.13	1	Coupland & Johnson, 1965
78	Carex eleocharis	needle-leaf sedge		0.68	2.23	1	Coupland & Johnson, 1965
79	Carex filifolia	Threadleaf sedge		1.5	4.92	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
80	Carex geyeri	Geyer's sedge		1.6	5.25	1	Spence 1937
81	Carex geyeri	Geyer's sedge	Cyperaceae	1.6	5.25	1	Spence 1937
82	Carex houghtonii	Houghton's sedge		> 0.07(rhizome)	> 0.23 (rhizome)	1	Whittle et al., 1998
83	Carex melanantha			0.55	1.80	1	Nesterova, 1996

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
84	Carex nebrascensis	Nebraska sedge		0.6	1.97	1	Castelli et al., 2000
85	Carex nebrascensis	Nebraska sedge		1.3	4.27	1	Castelli et al., 2000
86	Carex nebrascensis	Nebraska sedge		0.4	1.31	1	Martin and Chambers,
87	Carex nebrascensis	Nebraska sedge		0.6	1.97	1	Martin and Chambers,
88	Carex nebrascensis	Nebraska sedge		0.8	2.62	1	Martin and Chambers,
89	Carex nebrascensis	Nebraska sedge		0.65	2.13	1	Svejcar & Wright, 1995
90	Carex pennsylvanica	Pennsylvania sedge		0.91	2.99	1	Weaver, 1919
91	Carex serratodens	Twotooth Sedge				1	
92	Carex spp.					1	
93	Carex turkestanica			0.4	1.31	1	Nesterova, 1996
94	Carex varia	early flowering		1.03	3.38	1	Sperry, 1935
95	Ceanothus crassifolius	Hoaryleaf ceanothus		> 1.37	>4.49	1	Hellmers et al., 1955
96	Ceanothus crassifolius	Hoaryleaf ceanothus	Rhamnaceae	1.37	4.49	1	Hellmers et al. 1955
97	Ceanothus cuneatus					1	
98	Ceanothus greggii		Rhamnaceae	0.3	0.98	1	Miller & Ng 1977
99	Ceanothus greggii		Rhamnaceae	0.3	0.98	1	Miller & Ng 1977
100	Ceanothus tomentosus					1	
101	Ceanothus verrucosus					1	
102	Celtis reticulata	Netleaf Hackberry	Ulmaceae	4.6	15.09	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
103	Cercidium floridum					1	
104	Chilopsis linearis	Desert Willow	Bignoniaceae	1.6	5.25	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
105	Chrysothamnus	yellow rabbitbrush,		1 - 1.25	3.28-4.10	1	Abbott et al. 1991
106	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		> 3.92	>12.86	1	Dittmer, 1959
107	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		4	13.12	1	Donovan et al., 1996
108	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		2.4	7.87	1	Groeneveld & Crowley, 1988
109	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		2.5	8.20	1	Klepper et al., 1985
110	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		> 1.55 (2mto guess)	> 5.09	1	Sperry & Hacke, 2002
111	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		> 1.55	> 5.09	1	Sperry & Hacke, 2002
112	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.47	4.82	1	Klepper et al. 1985
113	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.5	4.92	1	Klepper et al. 1985
114	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.6	5.25	1	Klepper et al. 1985
115	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.7	5.58	1	Klepper et al. 1985
116	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.75	5.74	1	Klepper et al. 1985
117	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.85	6.07	1	Klepper et al. 1985
118	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	2	6.56	1	Klepper et al. 1985
119	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	2.1	6.89	1	Klepper et al. 1985
120	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	2.5	8.20	1	Klepper et al. 1985

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
121	Chrysothamnus nauseosus consimilis					1	
122	Chrysothamnus nauseosus graveolens					1	
123	Chrysothamnus nauseosus mohavensis					1	
124	Chrysothamnus nauseosus oreophilus					1	
125	Chrysothamnus nauseosus viridulus					1	
126	Chrysothamnus pumilus					1	
127	Cowania stansburiana					1	
128	Cynodon dactylon	Coastal' bermudagra		> 1.5	>4.92	1	Franzluebbers &
129	Dalea spinosa					1	
130	Dasiphora fruticosa					1	
131	Distichlis spicata	seashore saltgrass,		0.61	2.00	1	Weaver, 1919
132	Distichlis spicata	Saltgrass/Seashore Saltgrass	Poaceae	0.6	1.97	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
133	Distichlis stricta					1	
134	Elymus condensatus					1	
135	Elymus triticoides	creeping wild rye,		1.17	3.84	1	Weaver, 1919
136	Encelia farinosa	brittlebush		0.55	1.80	1	Cannon, 1911
137	Eragrostis obtusiflora					1	
138	Ericameria cooperi		Asteraceae	1.03	3.38	1	Cody 1986
139	Ericameria cooperi		Asteraceae	1.35	4.43	1	Cody 1986
140	Ericameria cooperi		Asteraceae	1.3	4.27	1	Manning & Barbour 1988
141	Ericameria cooperi		Asteraceae	1.47	4.82	1	Manning & Groeneveld 1989
142	Ericameria nauseosa	Rubber Rabbitbrush		4	13.12	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
143	Eriogonum fasciculatum	California Buckwheat		1.1	3.61	1	Esler & Rundel, 1999
144	Eriogonum fasciculatum	California buckwheat		> 1.22	> 4.00	1	Hellmers et al., 1955
145	Eriogonum fasciculatum	California Buckwheat	Polygonaceae	1.05	3.44	1	Cody 1986
146	Eriogonum inflatum					1	
147	Eucalyptus globulus	Tasmanian blue gum		1.5	4.92	1	Sudmeyer et al., 2004
148	Eucalyptus globulus	Tasmanian blue gum		3	9.84	1	Sudmeyer et al., 2004
149	Eucalyptus globulus	Tasmanian blue gum		3	9.84	1	Sudmeyer et al., 2004
150	Eucalyptus globulus	Eucalyptus		0.6	1.97	1	Ben Faber. 2017 TNC Crowdsourcing Campaign Survey Response.
151	Frankenia jamesii					1	
152	Fraxinus velutina	Velvet ash or Arizona ash		2.1336	7.00	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
153	Gutierrezia microcephala		Asteraceae	0.62	2.03	1	Cody 1986
154	Gutierrezia sarothrae	broom snakeweed		1.05	3.44	1	Lee and Laurenroth,
155	Gutierrezia sarothrae	broom snakeweed		2.05	6.73	1	Lee and Laurenroth,
156	Gutierrezia sarothrae	broom snakeweed		1.98	6.50	1	Weaver, 1919
157	Hedysarum boreale					1	
158	Heliotropium curassavicum					1	
159	Heterotheca grandiflora					1	
160	Hymenoclea monogyra					1	
161	Hymenoclea salsola		Asteraceae	1.95	6.40	1	Cody 1986
162	Hymenoclea salsola		Asteraceae	1.02	3.35	1	Manning & Groeneveld 1989
163	Isocoma acradenia	Alkali Goldenbush/Alkali Jimmyweed				1	
164	Isocoma menziesii					1	
165	Juglans microcarpa					1	
166	Juncus balticus					1	

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
167	Juncus cooperi					1	
168	Juniperus scopulorum					1	
169	Lepidium latifolium	Broadleaf Pepper-grass				1	
170	Lepidospartum squamatum	Scalebroom				1	
171	Leptochloa fascicularis					1	
172	Lotus scoparius	Deerweed	Fabaceae	1.13	3.71	1	Hellmers et al. 1955
173	Medicago sativa	alfafa		2.74	8.99	1	Meinzer, 1927
174	Petalonyx thurberi					1	
175	Phragmites australis	common reed		0.7	2.30	1	Kohzu et al., 2003
176	Phragmites australis	common reed		2.5	8.20	1	Kohzu et al., 2003
177	Phragmites australis	Common Reed				1	
178	Phragmites communis	common reed		0.25	0.82	1	Sherff, 1912
179	Picea engelmanni					1	
180	Plantanus racemosa					1	
181	Platanus wrightii					1	
182	Pluchea odorata					1	
183	Pluchea sericea	arrowweed		1.31	4.30	1	Gary, 1963
184	Pluchea sericea	Arrow-weed	Asteraceae	1.3	4.27	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
185	Populus acuminata					1	
186	Populus angustifolia	narrowleaf cottonwood		0.75	2.46	1	Rood et al., 2011
187	Populus angustifolia	narrowleaf cottonwood		1.15	3.77	1	Rood et al., 2011
188	Populus angustifolia	narrowleaf cottonwood		1.4	4.59	1	Rood et al., 2011
189	Populus balsamifera	balsam poplar		0.42	1.38	1	Pulling, 1918
190	Populus balsamifera	balsam poplar		0.9	2.95	1	Rood et al., 2011
191	Populus balsamifera	balsam poplar		1.25	4.10	1	Rood et al., 2011
192	Populus deltoides	eastern cottonwood		1	3.28	1	Ceballos et al., 2012
193	Populus deltoides	prairie cottonwood		1.35	4.43	1	Rood et al., 2011
194	Populus deltoides	Plains cottonwood		0.8	2.62	1	Sprackling and Read,
195	Populus deltoides	Plains cottonwood		3.7	12.14	1	Sprackling and Read,
196	Populus deltoides	Plains cottonwood		3.8	12.47	1	Sprackling and Read,
197	Populus euphratica	Euphrates Poplar or		4	13.12	1	Arndt, et al., 2004
198	Populus euphratica	Euphrates Poplar		10.65	34.94	1	Gries et al., 2003
199	Populus euphratica	Euphrates Poplar		15.25	50.03	1	Gries et al., 2003
200	Populus euphratica	Euphrates Poplar		22.15	72.67	1	Gries et al., 2003
201	Populus euphratica	Euphrates Poplar		8.25	27.07	1	Gries et al., 2003
202	Populus euramericana	hybrid poplar		3	9.84	1	Mulia & Dupraz, 2006
203	Populus fremontii	Fremont cottonwood		0.2	0.66	1	Shafroth et al., 2000
204	Populus fremontii	Fremont cottonwood		0.65	2.13	1	Shafroth et al., 2000
205	Populus fremontii	Fremont cottonwood		1.4	4.59	1	Shafroth et al., 2000
206	Populus fremontii	Fremont Cottonwood	Salicaceae	2.1	6.89	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
207	Populus grandidentata	large-tooth or big-tooth		1.2	3.94	1	Duncan, 1935
208	Populus nigra	Lombardy poplar		1.9	6.23	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
209	Populus pruinosa			4.0 - 6.0	13.12-19.69	1	Karimov & Molotkovski,
210	Populus sargentii	Plains Cottonwood		2.6	8.53	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
211	Populus spp.					1	
212	Populus texana					1	
213	Populus tremuloides	Quaking aspen		2	6.56	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
214	Populus tremuloides	Quaking aspen		0.73	2.40	1	Berndt and Gibbons, 1958

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
215	Populus tremuloides	Quaking aspen		1.28	4.20	1	Berndt and Gibbons, 1958
216	Populus tremuloides	Quaking aspen		1.52	4.99	1	Berndt and Gibbons, 1958
217	Populus tremuloides	trembling aspen		0.111	0.36	1	Mundell et al., 2007
218	Populus tremuloides	trembling aspen		0.3	0.98	1	Rood et al., 2011
219	Populus tremuloides	aspen		0.5	1.64	1	Strong & La Roi, 1983a,
220	Populus tremuloides	aspen		0.5	1.64	1	Strong & La Roi, 1983a,
221	Populus tremuloides	aspen		1.5	4.92	1	Strong & La Roi, 1983a,
222	Populus tremuloides	aspen		1.5	4.92	1	Strong & La Roi, 1983a,
223	Populus tremuloides	Quaking Aspen		2	6.56	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
224	Populus tremuloides	Quaking Aspen		2.3	7.55	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
225	Populus tremuloides	Quaking Aspen		2.9	9.51	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
226	Populus tremuloides aurea					1	
227	Populus trichocarpa	black cottonwood		0.65	2.13	1	Rood et al., 2011
228	Populus trichocarpa	hybrid poplar		1.25	4.10	1	Zhang et al., 1999
229	Populus trichocarpa	Black Cottonwood				1	
230	Populus weslizeni					1	
231	Prosopis glandulosa	Honey Mesquite		2.6	8.53	1	Gibbens and Lenz, 2001;
232	Prosopis glandulosa	Honey Mesquite		3	9.84	1	Gibbens and Lenz, 2001;
233	Prosopis glandulosa	Honey Mesquite		5.2	17.06	1	Gibbens and Lenz, 2001;
234	Prosopis glandulosa	Honey Mesquite		5.5	18.04	1	Gibbens and Lenz, 2001;
235	Prosopis glandulosa	Honey Mesquite		2.1	6.89	1	Midwood et al., 1998
236	Prosopis glandulosa	Honey Mesquite		2.4	7.87	1	Midwood et al., 1998
237	Prosopis glandulosa	Honey Mesquite		2.25	7.38	1	Moore et al., 2010
238	Prosopis glandulosa	Honey Mesquite		4.0 - 6.0	13.12 - 19.69	1	Nilsen et al., 1983
239	Prosopis glandulosa	Honey Mesquite	Fabaceae	15	49.21	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the AmericanSouthwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
240	Prosopis glandulosa	Honey Mesquite	Fabaceae	20	65.62	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the AmericanSouthwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
241	Prosopis juliflora	mesquite		53	173.88	1	Phillips, 1963
242	Prosopis pubescens					1	
243	Prosopis velutina	velvet mesquite		5	16.40	1	Brunel, 2009
244	Prosopis velutina	velvet mesquite		5.0-8.0	16.40-26.25	1	Cannon, 1911
245	Pulchea sericea					1	
246	Quercus agrifolia	coast live oak		>4	>13.12	1	Bornyasz et al., 2005
247	Quercus agrifolia	Coast Live Oak	Fagaceae	10.7	35.10	1	Cannon 1914
248	Quercus agrifolia	Coast Live Oak	Fagaceae	7.3	23.95	1	Kummerow 1981
249	Quercus agrifolia	Coast Live Oak	Fagaceae	9.1	29.86	1	Thomas 1980
250	Quercus agrifolia	Coast Live Oak	Fagaceae	10.7	35.10	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
251	Quercus agrifolia	Coast Live Oak	Fagaceae	7.3	23.95	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
252	Quercus agrifolia	Coast Live Oak	Fagaceae	9.1	29.86	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
253	Quercus agrifolia	Coast Live Oak	Fagaceae	10.7	35.10	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
254	Quercus chrysolepis	Canyon live oak		7.32	24.02	1	Hellmers et al., 1955
255	Quercus chrysolepis	Canyon Live Oak	Fagaceae	7.32	24.02	1	Hellmers et al. 1955

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
256	Quercus chrysolepis	Canyon Live Oak	Fagaceae	7.3	23.95	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
257	Quercus dumosa	Californinia scrub oak		> 2.44	> 8.01	1	Hellmers et al., 1955
258	Quercus dumosa	Californinia scrub oak		8.53	27.99	1	Hellmers et al., 1955
259	Quercus dumosa	Californinia scrub oak	Fagaceae	8.53	27.99	1	Hellmers et al. 1955
260	Quercus lobata	Valley Oak	Fagaceae	24.38	80.00	1	Lewis & Burgy 1964
261	Quercus lobata	Valley Oak	Fagaceae	24.38	80.00	1	Howard, J. 1992. Quercus lobata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Available: https://www.fs.fed.us/database/feis/plants/tree/quelob/all.html
262	Rhus integrifolia					1	
263	Rhus ovata					1	
264	Ribes speciosum					1	
265	Rosa arkansana	Prairie Rose		6.45	21.16	1	Weaver, 1919
266	Rosa blanda	rose bush		0.98	3.22	1	Cheyney, 1929, 1932
267	Rosa californica	California Rose				1	
268	Rosa humilis	Carolin A Rose, Sand		0.8	2.62	1	Sperry, 1935
269	Rosa nutkana	Rosa nutkana /		2.44	8.01	1	Weaver, 1915
270	Rosa setigera Michaux	Climbing prairie rose,		0.64	2.10	1	Duncan, 1935
271	Rosa setigera Michaux	Climbing prairie rose,		1.57	5.15	1	Duncan, 1935
272	Rosa spinosissima	burnet rose		2	6.56	1	Nesterova, 1996
273	Rosa spp.					1	
274	Rosa woodsii	Woods' Rose				1	
275	Salicornia europaea					1	
276	Salicornia rubra					1	
277	Salicornia utahensis					1	
278	Salix amygdaloides	Peachleaf willow		0.8	2.62	1	Sprackling and Read,
279	Salix amygdaloides	Peachleaf willow		4.3	14.11	1	Sprackling and Read,
280	Salix babylonica	Weeping willow		2.2	7.22	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
281	Salix bebbiana					1	
282	Salix breweri	Brewer's Willow				1	
283	Salix eastwoodiae	Mountain Willow				1	
284	Salix exigua	Narrowleaf Willow				1	
285	Salix geyeriana					1	
286	Salix gooddingii	Goodding's Willow	Salicaceae	2.1	6.89	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
287	Salix hookeriana					1	
288	Salix jepsonii					1	
289	Salix laevigata	Red Willow/Polished Willow				1	
290	Salix lasiolepis	Arroyo Willow				1	
291	Salix lemmonii	Lemmon's Willow				1	
292	Salix lucida	Shining Willow				1	
293	Salix lutea					1	
294	Salix nigra	black willow		2.4	7.87	1	Sprackling and Read,
295	Salix nigra	Black Willow				1	
296	Salix nivalis					1	
297	Salix orestera	Sierra willow				1	
298	Salix petrophila					1	
299	Salix planifolia					1	
300	Salix reticulata	net-leaved willow,		0.018	0.06	1	Jonasson & Callaghan,
301	Salix setchelliana	Setchell's willow		0.1	0.33	1	Douglas, 1989
302	Salix setchelliana	Setchell's willow		0.1	0.33	1	Douglas, 1989
303	Salix sitchensis					1	
304	Salix spp.	willow		0.8	2.62	1	Pulling, 1918
305	Salix spp.	Willow				1	

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
306	Salix tristis	narrow- leaved		2.24	7.35	1	Stoeckeler, 1938
307	Salsola kali	Russian thistle		2.09	6.86	1	Klepper et al., 1985
308	Sambucus mexicana	Blue elderberry		3	9.84	1	Kourik, R. 2015. Understanding Roots…discover how to make your garden flourish. Metamorphic Press, Occidental, CA.
309	Sambucus nigra	Common Elderberry				1	
310	Sambucus spp.					1	
311	Sarcobatus vermiculatus	greasewood , seepwood,		4	13.12	1	Donovan et al., 1996
312	Sarcobatus vermiculatus		Chenopodiaceae	3.6	11.81	1	Groeneveld 1989
313	Sarcobatus vermiculatus	Greasewood	Chenopodiaceae	3.6	11.81	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
314	Schoenoplectus americanus	Three-square Bulrush	Cyperaceae	0.65	2.13	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
315	Scirpus spp.	Club-rush				1	
316	Sequoia gigantea	giant sequoia,		1.83	6.00	1	MacDougal, 1937
317	Sesuvium portulocostrum					1	
318	Sesuvium verrucosum					1	
319	Shepherdia spp.					1	
320	Sporobolus airoides	Alkali Sacaton				1	
321	Sporobolus wrightii					1	
322	Suaeda depressa					1	
323	Suaeda fruticosa					1	
324	Suaeda moquinii	Shrubby Seepweed				1	
325	Suaeda suffrutescens					1	
326	Suaeda torreyana					1	
327	Tamarix aphylla	Salt-cedar	Tamaricaceae	20	65.62	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
328	Tamarix aphylla	Salt-cedar	Tamaricaceae	10	32.81	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
329	Tamarix aphylla					1	
330	Tamarix gallica					1	
331	Tamarix parviflora	Smallflower Tamarisk				1	
332	Tamarix ramosissima	salt cedar		2	6.56	1	Arndt, et al., 2004
333	Tamarix ramosissima	Saltcedar		10.8	35.43	1	Gries et al., 2003
334	Tamarix ramosissima	Saltcedar		13.2	43.31	1	Gries et al., 2003
335	Tamarix ramosissima	Saltcedar		21.9	71.85	1	Gries et al., 2003
336	Tamarix ramosissima	Saltcedar		6.5	21.33	1	Gries et al., 2003
337	Tamarix ramosissima	salt cedar		0.34	1.12	1	Nippert et al., 2010
338	Tamarix ramosissima	salt cedar		0.85	2.79	1	Nippert et al., 2010
339	Tamarix ramosissima	salt cedar		1.25	4.10	1	Nippert et al., 2010
340	Tamarix ramosissima	salt cedar		1.45	4.76	1	Nippert et al., 2010
341	Tamarix ramosissima	Salt-cedar		4.9	16.08	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
342	Washingtonia filifera	California Fan Palm				1	
343	Xanthium strumarium					1	
344	Yucca brevifolia					1	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2	Arizona	NR	NR	Shrub	Personal observation					1	ND
3	E. Nebraska	Prarie with planted and	Wabash clay	tree	excavation						
4	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
5	Missouri	Upland	clay	Tree	Excavation					1	Y
6	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
7	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
8	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
9	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
10	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
11	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		
12	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
13	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
14											
15	Tooele Valley, Utah	arid valleys of the US SW	clay	shrub	excavation						
16										1	
17	Springtown, Livermore, CA	Wetland	Clay. In alkali sink. Disturbed soils.		Field verification					1	
18										1	
19										1	
20										1	
21										1	
22											
23										1	
24	Mojave desert,	Arid desert		shrub	excavation						
25	S California, USA	subtropical desert		semi-shrub		perennial	34.33	-116.53			
26	Arizona	Stream bank	NR		Excavation					1	
27											
28	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
29	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
30	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
31	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
32	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
33	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
34	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
35	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
36	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
37	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
38	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
39	SE Washington, USA	temperate semi-desert	silt over bedrock	shrub		perennial	46.242	-119.2	Si		
40	Idaho, USA		aeolian sandy loam							1	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
41	NR	NR	Sand	Herbaceous perennial: Clonal graminoid	NR					0	
42											
43	Chihuahuan Desert, New	xeric shrubland	fine silt	shrub	excavation						
44	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	shrub	excavation						
45	N-central Colorado,	temperate steppe	sandy loam, 79% sand, 10% silt	shrub	excavation + soil						
46	Mojave desert,	Arid desert		shrub	excavation						
47	NR	NR	NR		NR					1	
48	Mojave desert,	Arid desert		shrub	excavation						
49	NR				NR					1	
50											
51										1	
52										1	
53										1	
54										1	
55										1	
56										1	
57	Salt River, C. Arizona	Riparian forest	clay 1', sand/gravel 2'	shrub	excavation						
58	California, USA		sandy loam on granodiorite	shrub		perennial	39.7783	-119.4179	SaLo		
59	California, USA	NR	sandy loam on granodiorite	shrub perennial						1	
60	Richmond, Point Molate, CA	Shrubland	Loam		Field verification. Observed slides at Point Molate where plants found at this rooting depth, these may go deeper.					1	
61	Arizona	Stream bank	NR	Shrub	Excavation					1	Y
62											
63										1	
64											
65											
66	Belgium	temperate wetland	no profile, humus (0.1m)	grass	soil cores						
67	Barrow, N. costal Alaska	wet tundra		sedge	root obsbox (like						
68										1	
69	Sweedish Lapland	tundra		grass	excavation						
70										1	
71	southern Saskatchewan	Canadian Prairies	sand	sedge, sod forming	trenchwall						
72	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
73	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
74	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
75	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
76	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
77	southern Saskatchewan	Canadian Prairies	gravel subsoil	sedge, sod forming	trenchwall						
78	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
79	Colorado, USA		silt loam							1	
80	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	grass	trenchwall						
81	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	rhizomatous grass		perennial	43.8207	-117.026	Sa		
82	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	grass (rhizomatous)	excavation						
83	Zailiisky Alatau Range,	dry steppe		rhizomatous herb	trench						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
84	central Nevada	riparian medow	Aquiccryoboroll,	sedge	soil pit						
85	central Nevada	riparian medow	Haplocryoll	sedge	soil pit						
86	Central Nevada, US	desert reparian	aquiccryoborrols to	sedge grass, grass	minirhizotron						
87	Central Nevada, US	desert reparian	aquiccryoborolls	sedge grass, grass	minirhizotron						
88	Central Nevada, US	desert reparian	aquiccryoborolls	sedge grass, grass	minirhizotron						
89	N Sierra Nevada, near	riparian meadow		sedge	minirhizotron tube						
90	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	sedge	excavation						
91										1	
92											
93	Zailiisky Alatau Range,	dry steppe		rhizomatous sedge	trench						
94	Illinoise	temperate deciduous	brown silt loam	sedge	excavation						
95	San Gabrial / Bernardino	Chaparral	litter, humus (0.08-0.15m) on	shrub	excavation						
96	California, USA	mediterranean sclerophyllous shrubland	clay loam on diorite	shrub		perennial	34.2	-117.76	ClLo		
97											
98	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
99	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
100											
101											
102	Arizona	NR	NR	Tree	Personal observation					1	Y
103											
104	New Mexico	Arroyo	NR	Tree/Shrub	Excavation					1	N
105	SE Idaho, INEL	semi-arid shrub-steppe	sandy loam to clay; calcic	shrub	131I radiotracer						
106	North-Central Arizona	arid desert	sand, graval, hard clay, then	shrub	excavation						
107	Mono Lake, California	arid desert	2-3.6m dune sand on lake	shrub	soil pitsand cores						
108	Owen Valley, CA	arid desert	sandy	shrub	trenchwall + soil						
109	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	shrub	excavation						
110	Great Basin, C Utah	arid desert	Sand (87% sand, 6% silt, 7% clay),	shrub	soil pits, inferred						
111	Great Basin, C Utah	arid desert	Sandy loam (59% sand, 29%	shrub	soil pits, inferred						
112	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
113	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
114	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
115	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
116	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
117	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
118	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
119	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
120	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
121											
122											
123											
124											
125											
126											
127											
128	central Georgia, US	managed pasture	sandy loam	grass	soil coring						
129											
130										1	
131	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
132	Nebraska	Alluvial flood-plain	Alluvial flood-plain	Herbaceous perennial: Clonal graminoid	Excavation					1	
133											
134											
135	near Pike's Peak,	Half Graval- slide	coarse, rocky soil, more	grass	excavation						
136	Sonoran Desert,	arid desert	adobe clay, amlpais (from	shrub	excavation						
137											
138	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
139	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
140	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
141	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
142	California			Shrub	Excavation					1	Y
143	Mojave Desert,		granite alluvium	shrub	excavation						
144	San Gabrial / Bernardino	Chaparral	coarse, loose gravel	subshrub	excavation						
145	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
146											
147	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
148	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
149	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
150	Ventura, CA	Woodland	Loam		Field verification					0	
151											
152	Arizona			Tree	Personal observation					1	Y
153	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	suffrutescent forb		perennial	35.011	-115.4734	Sa		
154	N-central Colorado,	temperate steppe	sandy clay loam, 67% sand, 13%	sub shrub	excavation + soil						
155	N-central Colorado,	temperate steppe	sandy loam, 79% sand, 10% silt	sub shrub	excavation + soil						
156	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	half shrub	excavation						
157											
158											
159											
160											
161	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
162	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
163										1	
164											
165											
166											

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
167										1	
168											
169										0	
170										1	
171											
172	California, USA	mediterranean sclerophyllous shrubland	loam to clay loam on diorite	semi-shrub		perennial	34.2	-117.76	Lo		
173	Escalante Valley, Utah	arid valleys of the US SW		forb	excavation						
174											
175	northern Kyoto City,	wetland	peat	grass	excavation for						
176	northern Kyoto City,	wetland	peat	grass	excavation for						
177										1	
178	N. Illinoise near Lake	temperate riparian	black muck or partially	reed	excavation						
179											
180											
181											
182											
183	Salt River, C. Arizona	Riparian forest	sand	rhizomatous shrub	excavation						
184	Arizona	stream bank	Sand	Shrub	Excavation					1	Y
185											
186	British Columbia and	riparian forest		tree	river-cutbanks						
187	British Columbia and	riparian forest		tree	river-cutbanks						
188	British Columbia and	riparian forest		tree	river-cutbanks						
189	Minitoba (Canada) and	Boreal forest	frozen at 170cmdepth	tree	excavation						
190	British Columbia and	riparian forest		tree	river-cutbanks						
191	British Columbia and	riparian forest		tree	river-cutbanks						
192	Parana River Delta,	wetland	0.3m organic over mineral	tree	excavation						
193	British Columbia and	riparian forest		tree	river-cutbanks						
194	E. Nebraska	Prarie with planted and	Cass loam	tree	excavation						
195	E. Nebraska	Prarie with planted and	Marshall siltloam	tree	excavation						
196	E. Nebraska	Prarie with planted and	Cass silty clayloam	tree	excavation						
197	Taklamakan desert, W.	arid desert	pure silt	tree	excavation						
198	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
199	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
200	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
201	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
202	N. of Montpellier,	subhumid Mediterrane	sandy alluvialfluvisol, 8% clay,	tree	soil coringto 3m						
203	Sonoran Desert,	Desert grass/dwarf	half gravel half sand, coarsest	tree	excavation						
204	Sonoran Desert,	Desert grass/dwarf	sands and gravel	tree	excavation						
205	Sonoran Desert,	Desert grass/dwarf	stratas of coarse and medium	tree	excavation						
206	Arizona	River bottomland	NR	Tree	Personal observation					1	Y
207	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	tree	excavation						
208	Japan		silt loam							0	
209	Pamiro-Alay, W Tajikistan	dry steppe		tree	soilmonolith						
210	Missouri		loam underlain with clay							0	
211											
212											
213	Sweden		clay subsoil							1	
214	Front Range Rockies, near	mountain forest	loose fine grey sand on	tree	exavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
215	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	tree	exavation						
216	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	tree	exavation						
217	near Roblin, Manitoba, CA	Priarie posholes	subxeric silty clay Orthic Gray	tree	trenchwall						
218	British Columbia and	riparian forest		tree	river-cutbanks						
219	SE of Lesser Slave Lake,	boreal mixed forest	outwash/moraine (sandy loam /	tree	trenchwall						
220	SE of Lesser Slave Lake,	boreal mixed forest	outwash/moraine (sandy loam /	tree	trenchwall						
221	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
222	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
223	S-Canada		sandy substrate							1	
224	Michigan		grey clay							1	
225	Utah		sandy loam							1	
226											
227	British Columbia and	riparian forest		tree	river-cutbanks						
228	Reading, England	temporate broad-leaf	sandy loam	tree	soil coringto 1.5m						
229										1	
230											
231	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	tree	excavation						
232	Chihuahuan Desert, New	xeric shrubland	mosaic of sandyor coarse-loamy	tree	excavation						
233	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	tree	excavation						
234	Chihuahuan Desert, New	xeric shrubland	fine silty, apaleosol at 3.2m	tree	excavation						
235	near Alice, S. Texas	savanna parkland	sandy loam over claypan	legume tree	1.5mcorning						
236	near Alice, S. Texas	savanna parkland	sandy loam soil 2m deep	legume tree	1.5mcorning						
237	S. Texas	xeric shrubland	deep to very deep, sandy	shrub	soilcorning						
238	Harper's Well, S. CA	arid desert	clay loam, then sand/clay lenses	tree	soil coring						
239		playa lake	NR	Tree/Shrub						1	Y
240	Texas	Savannah; karst	NR	Tree/Shrub	Personal observation					1	
241	near Tucson, Arizona	Sonoran Desert	roots in gravel between layers	tree	open-pitmine						
242										1	
243	Cananea, Mexico, near	xeric shrubland	thick alluvium	tree	O-18						
244	Sonoran Desert,	arid desert	sand, adobe	tree	excavation						
245											
246	Southern California, US	Mediterrane an woodland	coarse-loamy, well-drained	tree	newlyexposed						
247	California, USA	mediterranean woodland		tree		perennial	35.3	-120.7			
248	California, USA	mediterranean woodland		tree		perennial	35.3	-120.7			
249	California, USA	mediterranean woodland		tree		perennial	35.3	-120.7			
250	California	mediterranean woodland	NR	tree perennial						1	
251	California	mediterranean woodland	NR	tree perennial						1	
252	California	mediterranean woodland	NR	tree perennial						1	
253	California	mediterranean woodland	NR	tree perennial						1	
254	San Gabrial / Bernardino	Chaparral	either gravel terraces or	tree	road cut						
255	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
256	California	mediterranean sclerophyllous shrubland	granitic bedrock/sandy loam on granodiorite							1	
257	San Gabrial / Bernardino	Chaparral	litter, humus (0.08-0.15m) on	shrub	excavation						
258	San Gabrial / Bernardino	Chaparral	either gravel terraces or	shrub	road cut						
259	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		
260	N California, USA	mediterranean woodland	fractured rock	tree		perennial	38.98	-121.23	Ro		
261	N California	mediterranean woodland	fractured rock	tree perennial						1	
262											
263											
264											
265	near Peru, E. Nebraska	chaparral	loess, more compact below	shrub	excavation						
266	Northern Minnesota	Boreal forest	coarse sand	shrub	excavation						
267										1	
268	Illinoise	temperate deciduous	coarse yellow sand	shrub	excavation						
269	near Pullman, SE	High Prairie	fine silt-loam, can be very	shrub / herb	excavation						
270	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	shrub	excavation						
271	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	shrub	excavation						
272	Zailiisky Alatau Range,	dry steppe		rhizomatous shrub	trench						
273											
274										1	
275											
276											
277											
278	E. Nebraska	Prarie with planted and	Cass fine sandy loam	tree	excavation						
279	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
280	Japan		silt/loam							0	
281										1	
282										1	
283										1	
284										1	
285										1	
286	Arizona	River bottomland	NR	Tree	Personal observation					1	Y
287										1	
288										1	
289										1	
290										1	
291										1	
292										1	
293										1	
294	E. Nebraska	Prarie with planted and	Cass loamy sand	tree	excavation						
295										1	
296										1	
297										1	
298										1	
299										1	
300	Sweedish Lapland	tundra		shrub (prostrate,	excavation						
301	Denali National Park,	Taiga	sandy -gravelly	clonal shrub	excavation						
302	Denali National Park,	Taiga	sandy -gravelly	clonal shrub	excavation						
303										1	
304	Minitoba (Canada) and	Boreal forest	moss/leaf mold (6cm), brown	tree	excavation						
305										1	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
306	NC North Dakota	temperate steppe	deep dune sand	tree	hydraulicexcavatio						
307	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb	excavation						
308										1	
309										1	
310											
311	Mono Lake, California	arid desert	2-3.6m dune sand on lake	shrub	soil pitsand cores						
312	E California, USA	temperate desert	clay loam, water table at 1 m	shrub		perennial	37.16666667	-118.2833333	ClLo		
313	E California	temperate desert	clay loam, water table at 1 m	shrub perennial						1	
314	Chesapeake Bay	Coastal wetlands	NR	Herbaceous perennial: Clonal graminoid	Excavation (soil cores)					1	
315										1	
316	Sequoia National Park,	mountain forest		tree	upturnedroot plate						
317											
318											
319											
320										1	
321											
322											
323											
324										1	
325											
326											
327	Israel	run-on	alluvial		NR					0	
328	Egypt, Israel	NR	NR		NR					0	
329											
330											
331										0	
332	Taklamakan desert, W.	arid desert	pure silt	shrub or small tree	excavation						
333	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
334	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
335	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
336	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
337	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
338	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
339	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
340	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
341	Kansas	Windbreak			Excavation					0	
342										1	
343											
344											

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
2	Abies balsamea	balsam fir		0.56	1.84		Schultz, 1969
3	Abies balsamea	balsam fir		0.61	2.00		Schultz, 1969
4	Abies balsamea	balsam fir		0.69	2.26		Schultz, 1969
5	Abies balsamea	balsam fir		0.69	2.26		Schultz, 1969
6	Abies balsamea	balsam fir		0.71	2.33		Schultz, 1969
7	Abies balsamea	balsam fir		0.84	2.76		Schultz, 1969
8	Abies balsamea	balsam fir		0.89	2.92		Schultz, 1969
9	Abies balsamea	balsam fir		0.94	3.08		Schultz, 1969
10	Abies balsamea	balsam fir		0.97	3.18		Schultz, 1969
11	Abies balsamea	balsam fir		0.97	3.18		Schultz, 1969
12	Abies balsamea	balsam fir		1.02	3.35		Schultz, 1969
13	Abies balsamea	balsam fir		1.07	3.51		Schultz, 1969
14	Abies balsamea	balsam fir		1.32	4.33		Schultz, 1969
15	Abies balsamea	balsam fir		1.35	4.43		Schultz, 1969
16	Abies balsamea	balsam fir		1.4	4.59		Schultz, 1969
17	Abies balsamea	balsam fir		1.5	4.92		Schultz, 1969
18	Abies balsamea	balsam fir		2.41	7.91		Schultz, 1969
19	Abies balsamea	balsam fir		3	9.84		Schultz, 1969
20	Abies balsamea	balsam fir		1.3	4.27		Strong & La Roi, 1983a,
21	Abies balsamea	balsam fir		1.3	4.27		Strong & La Roi, 1983a,
22	Abies concolor	White Fir					
23	Abies faxoniana	Farges' fir		1.4	4.59		Xu et al., 2011
24	Abies firma	momi fir		3.3	10.83		Karizumi, 1979
25	Abies homolepis	Nikko fir		1.8	5.91		Karizumi, 1979
26	Abies mariesii	Maries' fir		1.4	4.59		Karizumi, 1979
27	Abies sachalinensis	Sakhalin fir		1.7	5.58		Karizumi, 1979
28	Abies veitchii	Veitch's fir		0.6	1.97		Karizumi, 1979
29	Abies veitchii	Veitch's fir		1.2	3.94		Karizumi, 1979
30	Abies veitchii	Veitch's fir		1.5	4.92		Karizumi, 1979
31	Abronia pogonantha		Nyctaginaceae	0.18	0.59		Wilson 1972
32	Abronia villosa		Nyctaginaceae	0.3	0.98		Forseth et al. 1984
33	Abronia villosa		Nyctaginaceae	0.21	0.69		Wilson 1972
34	Acacia albida	Acacia albida		1.5	4.92		Dupuy & Dreyfus, 1992
35	Acacia albida	Acacia albida		16.5	54.13		Dupuy & Dreyfus, 1992
36	Acacia albida	Acacia albida		34	111.55		Dupuy & Dreyfus, 1992
37	Acacia albida	Acacia albida		4.5	14.76		Dupuy & Dreyfus, 1992
38	Acacia amythethoph	Large- leaved		3.3	10.83		Timberlake & Calvert, 1993
39	Acacia auriculiformis	Auri, Earleaf acacia,		2	6.56		Das & Chaturvedi,
40	Acacia eriocarpa	Woolly-pod acacia		0.5	1.64		Timberlake & Calvert, 1993
41	Acacia erioloba	Camel thorn		20	65.62		Obakeng, 2007
42	Acacia erioloba	Camel thorn		35	114.83		Obakeng, 2007
43	Acacia erioloba	Camel thorn		40	131.23		Obakeng, 2007
44	Acacia erioloba	Camel thorn		47	154.20		Obakeng, 2007
45	Acacia erioloba	Camel thorn		55	180.45		Obakeng, 2007
46	Acacia erioloba	Camel thorn		70	229.66		Obakeng, 2007
47	Acacia fleckii	Blade thorn		15	49.21		Obakeng, 2007
48	Acacia fleckii	Blade thorn		15	49.21		Obakeng, 2007
49	Acacia fleckii	Blade thorn		28	91.86		Obakeng, 2007
50	Acacia gerrardii	Grey-haired acacia		3.3	10.83		Timberlake & Calvert, 1993
51	Acacia goetzei ssp.			1	3.28		Timberlake & Calvert, 1993
52	Acacia goetzei ssp.			1.7	5.58		Timberlake & Calvert, 1993
53	Acacia goetzei ssp.			2.5	8.20		Timberlake & Calvert, 1993
54	Acacia greggii	Catclaw Acacia	Fabaceae	5.5	18.04	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
55	Acacia hockii	white thorn acacia		2	6.56		Seghieri, 1995
56	Acacia luederitzii	Kalahari-sand Acacia		1.6	5.25		Hipondoka et al., 2003

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
57	Acacia mangium	Black Wattle,		5	16.40		Syahrinudin, 2005
58	Acacia mellifera	black thorn		1.5	4.92		Hipondoka et al., 2003
59	Acacia nigrescens	Knobthorn		0.7	2.30		Timberlake & Calvert, 1993
60	Acacia nigrescens	Knobthorn		0.8	2.62		Timberlake & Calvert, 1993
61	Acacia nigrescens	Knobthorn		1.2	3.94		Timberlake & Calvert, 1993
62	Acacia polyacantha	white thorn		2.9	9.51		Timberlake & Calvert, 1993
63	Acacia reficiens			2.4	7.87		Coughenour et al., 1990
64	Acacia robusta ssp	Splendid thorn		0.9	2.95		Timberlake & Calvert, 1993
65	Acacia seyal	Red acacia		1.5	4.92		Seghieri, 1995
66	Acacia sieberiana	Paperbark Thorn		3.6	11.81		Timberlake & Calvert, 1993
67	Acacia tortilis	Umbrella thorn acacia		3.5	11.48		Coughenour et al., 1990
68	Acacia tortilis	Umbrella thorn acacia		25	82.02		Do et al., 2008
69	Acacia tortilis	Umbrella thorn acacia		1.5	4.92		Timberlake & Calvert, 1993
70	Acalypha virginica	Virginia threeseed		0.02	0.07		Sherff, 1912
71	Acamptopappus shockleyi	goldenheads		0.4	1.31		Wallace et al., 1980
72	Acamptopappus	rayless goldenhead		1	3.28		Esler & Rundel, 1999
73	Acamptopappus	rayless goldenhead	Asteraceae	0.98	3.22		Cody 1986
74	Acanthococos sp.			0.55	1.80		Rawitscher, 1948
75	Acanthosicyos horrida	nara		4.75	15.58		Kutschera-Mitter, 1996
76	Acanthyllis tragacanthoi			0.3	0.98		Cannon, 1913
77	Acer glabrum						
78	Acer macrophyllum	Bigleaf Maple					
79	Acer negundo	Box-elder		2	6.56	1	Sprackling and Read,
80	Acer negundo	Box-elder		3.7	12.14	1	Sprackling and Read,
81	Acer negundo	Box-elder	Aceraceae	4	13.12	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
82	Acer rubrum	red maple		3.5	11.48		Lyford and Wilson, 1964
83	Acer saccharinum	Silver maple		3.4	11.15		Sprackling and Read,
84	Acer saccharum	sugar maple		1.5	4.92		Dawson, 1993
85	Acer saccharum	sugar and red maple,		> 1.0	> 3.28		Hendrick & Pregitzer,
86	Acer saccharum	sugar and red maple,		> 1.0	> 3.28		Hendrick & Pregitzer,
87	Acer saccharum	sugar maple		> 0.6	> 1.97		Riestenberg, 1994
88	Acer saccharum	sugar maple		1	3.28		Riestenberg, 1994
89	Acer saccharum	sugar maple		0.91	2.99		Scully, 1942
90	Acer saccharum	sugar maple		0.99	3.25		Scully, 1942
91	Acer saccharum	sugar maple		1.04	3.41		Scully, 1942
92	Acer saccharum	sugar maple		1.04	3.41		Scully, 1942
93	Acer saccharum	sugar maple		1.07	3.51		Scully, 1942
94	Acer saccharum	sugar maple		1.12	3.67		Scully, 1942
95	Acer saccharum	sugar maple		1.17	3.84		Scully, 1942
96	Acer saccharum	sugar maple		1.22	4.00		Scully, 1942
97	Acer semenovii	Turkestan Shrub		5.1	16.73		Nesterova, 1996
98	Achillea lanulosa	western yarrow		1.07	3.51		Spence 1937
99	Achillea millefolium		Asteraceae	1.7	5.58		Spence 1937
100	Achillea subalpina	Common yarrow		0.16	0.52		Daubenmire, 1941
101	Achnatherum hymenoides		Poaceae	1.12	3.67		Klepper et al. 1985
102	Achnatherum hymenoides		Poaceae	1.2	3.94		Klepper et al. 1985
103	Achnatherum hymenoides		Poaceae	1.25	4.10		Klepper et al. 1985
104	Achnatherum lettermanii		Poaceae	0.8	2.62		Spence 1937
105	Adansonia digitata	Baobab		1.8	5.91		Fenner, 1980
106	Adenium somalense			1.4	4.59		Glover, 1950
107	Adenostoma fasciculatum		Rosaceae	2.44	8.01	1	Hanes 1965
108	Adenostoma fasciculatum		Rosaceae	2.44	8.01	1	Hanes 1965
109	Adenostoma fasciculatum		Rosaceae	0.3	0.98	1	Miller & Ng 1977
110	Adenostoma fasciculatum		Rosaceae	1	3.28	1	Miller & Ng 1977

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111	Adenostoma fasciculatum		Rosaceae	1	3.28	1	Miller & Ng 1977
112	Adenostoma fasciculatum		Rosaceae	7.62	25.00	1	Hellmers et al. 1955
113	Adenostoma fasciculatum	Chamise		> 2.45	>8.04		Hellmers et al., 1955
114	Adenostoma fasciculatum	Chamise		7.62	25.00		Hellmers et al., 1955
115	Adenostoma sparsifolium		Rosaceae	1.83	6.00	1	Hanes 1965
116	Adenostoma sparsifolium		Rosaceae	2.44	8.01	1	Hanes 1965
117	Adesmia boronioides			< 2	<6.56		Bucci et al., 2009
118	Adesmia volckmanni			1.4	4.59		Flombaum & Sala, 2012
119	Aesculus glabra	Ohio buckeye		1.3	4.27		Sprackling and Read,
120	Agave deserti		Agavaceae	0.25	0.82		Nobel 1989
121	Agave deserti		Agavaceae	0.25	0.82		Schenk & Jackson 2002
122	Agropyron cristatum L.	crested wheatgrass		0.75 - 1	2.46-3.28		Abbott et al. 1991
123	Agropyron cristatum L.	crested wheatgrass		> 1.5	>4.92		Reynolds & Fraley, 1989
124	Agropyron dasystachyum	thickspike wheatgrass		1.1	3.61		Coupland & Johnson, 1965
125	Agropyron dasystachyum	thickspike wheatgrass		1.12	3.67		Coupland & Johnson, 1965
126	Agropyron dasystachyum	thickspike wheatgrass		1.15	3.77		Coupland & Johnson, 1965
127	Agropyron dasystachyum	thickspike wheatgrass		1.22	4.00		Coupland & Johnson, 1965
128	Agropyron dasystachyum	thickspike wheatgrass		1.3	4.27		Coupland & Johnson, 1965
129	Agropyron dasystachyum	thickspike wheatgrass		1.42	4.66		Coupland & Johnson, 1965
130	Agropyron dasystachyum	thickspike wheatgrass		1.42	4.66		Coupland & Johnson, 1965
131	Agropyron dasystachyum	thickspike wheatgrass		1.52	4.99		Coupland & Johnson, 1965
132	Agropyron desertorum	desert crested		0.74	2.43		Hironaka 1961
133	Agropyron glaucum	Wheat grass		2.13	6.99		Weaver, 1919
134	Agropyron inerme	beardless wheatgrass		1.05	3.44		Spence 1937
135	Agropyron intermedium	intermediat e		0.81	2.66		Hironaka 1961
136	Agropyron smithii	western wheatgrass		0.68	2.23		Coupland & Johnson, 1965
137	Agropyron smithii	western wheatgrass		1.27	4.17		Coupland & Johnson, 1965
138	Agropyron smithii	western wheatgrass		1.37	4.49		Coupland & Johnson, 1965
139	Agropyron smithii	western wheatgrass		1.52	4.99		Coupland & Johnson, 1965
140	Agropyron smithii	western wheatgrass		1.55	5.09		Coupland & Johnson, 1965
141	Agropyron smithii	western wheatgrass		1.65	5.41		Coupland & Johnson, 1965
142	Agropyron spicatum	Bluebunch Wheatgrass		1.46	4.79		Weaver, 1915
143	Agropyrum repens	couch grass		2.44	8.01		Weaver, 1919
144	Agrostis alba	redtop		0.04	0.13		Sherff, 1912
145	Agrostis halli			0.7	2.30		Koteen et al., 2011
146	Ailanthus altissima	Tree-of-Heaven	Simaroubaceae	1.2	3.94		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
147	Aizoon hispanicum			0.03	0.10		Schwarz, 1938
148	Ajania fastigiata			1.2	3.94		Nesterova, 1996
149	Albizia amara	silk plants, silk trees,		2.1	6.89		Timberlake & Calvert, 1993
150	Albizia versicolor	Poison-pod albizia		2.8	9.19		Timberlake & Calvert, 1993
151	Alchemilla obtusa			0.37	1.21		Nesterova, 1996
152	Alchornea trewioides			0.26	0.85		Nie et al., 2014
153	Alchornea trewioides			0.35	1.15		Nie et al., 2014
154	Alchornea trewioides			0.37	1.21		Nie et al., 2014
155	Aletes acaulis	Stemless indian		0.76	2.49		Weaver, 1919
156	Alhagi camelorum					1	
157	Alhagi pseudoalhagi	Camel thorn		2.9	9.51		Baitulin, 1996
158	Alhagi sparsifolia			5	16.40		Arndt, et al., 2004
159	Alhagi sparsifolia			1.7	5.58		Vonlanthen et al., 2010
160	Allenrolfea occidentalis	pickleweed		0.61	2.00	1	Meinzer, 1927

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161	Allenrolfea occidentalis	Iodine Bush		0.07	0.23	1	Trent, J.D., R.R. Blank, J.A. Young (1997) Ecophysiology of the Temperate Desert Halophytes: Allenrolfea occidentalis and Sarcobatus vermiculatus. Great Basin Naturalist 57(1), pp. 57-65
162	Allenrolfea occidentalis	Iodine Bush		1.8	5.91	1	Lech Naumovich. 2017 TNC Crowdsourcing Campaign Survey Response.
163	Allionia incarnata		Nyctaginaceae	0.37	1.21		Forseth et al. 1984
164	Alnus incana	Gray alder		0.7	2.30	1	Kutschera & Lichtenegger. 2002
165	Alnus incana ssp. tenuifolia	Mountain Alder				1	
166	Alnus rhombifolia	White Alder				1	
167	Alnus rubra	Red Alder				1	
168	Alnus spp.					1	
169	Alnus viridis			4	13.12	1	Kourik, R. 2015. Understanding Roots…discover how to make your garden flourish. Metamorphic Press, Occidental, CA.
170	Aloe littoralis	Windhoek Aloe		0.4	1.31		Kutschera-Mitter, 1996
171	Aloe sp.			0.65	2.13		Glover, 1950
172	Amaranthus palmeri			0.15	0.49		Cannon, 1911
173	Amaranthus palmeri		Amaranthaceae	0.37	1.21		Forseth et al. 1984
174	Amaranthus palmeri		Amaranthaceae	0.78	2.56		Forseth et al. 1984
175	Ambrosia acanthicarpa	bursage		1.8	5.91		Klepper et al., 1985
176	Ambrosia acanthicarpa		Asteraceae	1.33	4.36		Klepper et al. 1985
177	Ambrosia acanthicarpa		Asteraceae	1.65	5.41		Klepper et al. 1985
178	Ambrosia acanthicarpa		Asteraceae	1.65	5.41		Klepper et al. 1985
179	Ambrosia acanthicarpa		Asteraceae	1.67	5.48		Klepper et al. 1985
180	Ambrosia acanthicarpa		Asteraceae	1.8	5.91		Klepper et al. 1985
181	Ambrosia dumosa	burroweed, white		0.5	1.64	1	Wallace et al., 1980
182	Ambrosia dumosa		Asteraceae	0.7	2.30	1	Fonteyn & Mahall 1981
183	Ambrosia psilostachya	western ragweed		0.99	3.25		Sperry, 1935
184	Ambrosia psilostachya	Western Ragweed/Naked-spike Ambrosia	Asteraceae	1.8	5.91		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
185	Ambrosia salsola						
186	Amelanchier sanguinea	June berry, choke		0.61	2.00		Cheyney, 1929, 1932
187	Amelanchier sp.	shadbush, shadwood		> 0.3(rhizome)	> 0.98		Whittle et al., 1998
188	Amorpha canescens	leadplant		1.98	6.50		Stoeckeler, 1938
189	Amorpha canescens	leadplant		2.29	7.51		Weaver, 1919
190	Amorpha canescens	leadplant		3.91	12.83		Weaver, 1919
191	Anabasis articulata			> 3.5	>11.48		Veste & Breckle, 1996
192	Anabasis salsa			2	6.56		Baitulin, 1996
193	Anacardium excelsum	wild cashew or espavé		0.6	1.97		Johnson et al., 2013
194	Anacardium excelsum			> 4.3	>14.12		Sierra et al., 2007
195	Andira humilis			18	59.06		Rawitscher, 1948
196	Andropogon furcatus	bluestem		1.08	3.54		Sperry, 1935
197	Andropogon furcatus	bluestem		1.13	3.71		Sperry, 1935
198	Andropogon furcatus	bluestem		1.18	3.87		Sperry, 1935
199	Andropogon furcatus	bluestem		1.77	5.81		Sperry, 1935
200	Andropogon furcatus	bluestem		2.08	6.82		Weaver, 1919
201	Andropogon furcatus	bluestem		2.82	9.25		Weaver, 1919
202	Andropogon hallii	sand bluestem		0.69	2.26		Weaver, 1919
203	Andropogon nutans	glodstem		1.5	4.92		Weaver, 1919
204	Andropogon scoparius	little bluestem		1.12	3.67		Sperry, 1935
205	Andropogon scoparius	little bluestem		0.71	2.33		Weaver, 1919
206	Andropogon scoparius	little bluestem		1.65	5.41		Weaver, 1919
207	Andropogon scoparius	little bluestem		1.82	5.97		Weaver, 1919
208	Andropogon sp.	beard grass, bluestem		3.3	10.83		Jackson et al., 2002
209	Androsace subumbellata	pygmyflower		0.1	0.33		Daubenmire, 1941
210	Anemone patens var.	Pasque Flower		0.48	1.57		Coupland & Johnson, 1965
211	Anemone patens var.	Pasque Flower		0.51	1.67		Coupland & Johnson, 1965

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212	Anemone patens var.	Pasque Flower		0.61	2.00		Coupland & Johnson, 1965
213	Anemone patens var.	Pasque Flower		0.68	2.23		Coupland & Johnson, 1965
214	Anemone patens var.	Pasque Flower		0.78	2.56		Coupland & Johnson, 1965
215	Anemone patens var.	Pasque Flower		0.81	2.66		Coupland & Johnson, 1965
216	Anemone patens var.	Pasque Flower		0.86	2.82		Coupland & Johnson, 1965
217	Anemone patens var.	Pasque Flower		0.91	2.99		Coupland & Johnson, 1965
218	Anemone patens var.	Pasque Flower		1.22	4.00		Coupland & Johnson, 1965
219	Anemopsis californica	Yerba Mansa	Saururaceae	0.12	0.39	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
220	Anisophyllea disticha			0.3	0.98		Becker et al., 1999
221	Annona dioica			0.8 +/- 0.1	2.62 +/-0.33		Salis et al., 2014
222	Annona dioica			0.7+/- 0.2	2.30 +/- 0.66		Salis et al., 2014
223	Anona squamosa	custard apple		4.29	14.07		Howard, 1925
224	Antennaria dioica	mountain everlasting,		0.095	0.31		Jonasson & Callaghan,
225	Antennaria racemosa ?		Asteraceae	1.79	5.87		Weaver 1917
226	Antheropeas wallacei		Asteraceae	0.1	0.33		Forseth et al. 1984
227	Anthyllis cytisoides			1.5	4.92		Archer et al., 2002
228	Anthyllis henoniana			1.2	3.94		Derbel and Chaieb, 2012
229	Anthyllis vulneraria	Common kidneyvetch		1.7	5.58		Lichtenegger & Kutschera-
230	Antidesma cf. leucopodum			1.5	4.92		Becker et al., 1999
231	Aphanostephus	faintcrown		1.4	4.59		Gibbens and Lenz, 2001;
232	Aplopappus heterophyllus					1	
233	Aplopappus lanuginosus	woolly mock goldenweed		> 2.0	> 6.56		Spence 1937
234	Apocynum androsaemifolium	fly-trap dogbane		1.22	4.00		Weaver, 1919
235	Apocynum androsaemifolium	fly-trap dogbane		> 0.3(rhizome)	> 0.98		Whittle et al., 1998
236	Apodytes dimidiata	White Pear		6.1	20.01		Kerfoot, 1963
237	Aragallus lambertii			2.44	8.01		Weaver, 1919
238	Araucaria araucana K.	monkey puzzle tree,		0.6	1.97		Karizumi, 1979
239	Araucaria cunninghamii	hoop pine, colonial		3.2	10.50		Karizumi, 1979
240	Arbutus unedo	strawberry tree		10	32.81		Nijland et al., 2010
241	Arbutus unedo	strawberry tree		4.7	15.42		Nijland et al., 2010
242	Arbutus unedo	strawberry tree		7	22.97		Nijland et al., 2010
243	Arbutus unedo	strawberry tree		7.5	24.61		Nijland et al., 2010
244	Arbutus unedo	strawberry tree		9	29.53		Nijland et al., 2010
245	Arbutus unedo	strawberry tree		0.3	0.98		Silva & Rego, 2004
246	Arctostaphylos glandulosa	Eastwood's manzanita		> 2.74	> 8.99		Hellmers et al., 1955
247	Arctostaphylos glandulosa	Eastwood's manzanita		5.18	16.99		Hellmers et al., 1955
248	Arctostaphylos glandulosa	Eastwood's manzanita	Ericaceae	5.18	16.99		Hellmers et al. 1955
249	Arctostaphylos glauca	Bigberry manzanita		> 2.59	>8.99		Hellmers et al., 1955
250	Arctostaphylos glauca	Bigberry manzanita	Ericaceae	0.3	0.98		Miller & Ng 1977
251	Arctostaphylos glauca	Bigberry manzanita	Ericaceae	2.59	8.50		Hellmers et al. 1955
252	Arctostaphylos glutinosa	Schreiber's manzanita	Ericaceae	2.5	8.20		Davis 1972
253	Arctostaphylos pallida		Ericaceae	4	13.12		Davis 1972
254	Arctostaphylos patula	greenleaf manzanita		2	6.56		Rose et al., 2003
255	Arctostaphylos uva-ursi	Kinnikinnick		0.61	2.00		Berndt and Gibbons, 1958
256	Arctostaphylos uva-ursi	Kinnikinnick		0.61	2.00		Berndt and Gibbons, 1958
257	Arctostaphylos uva-ursi	Kinnikinnick		0.91	2.99		Berndt and Gibbons, 1958
258	Arenaria aequicaulis A.	spring sandwort		0.15	0.49		Daubenmire, 1941
259	Arenaria sajanensis			0.4	1.31		Daubenmire, 1941
260	Argemone platyceras	prickly poppy		3.66	12.01		Weaver, 1919
261	Argentina egedii	Pacific Silverweed/Egede's Cinquefoil					
262	Aristea major			1.45	4.76		Higgins et al., 1987

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263	Aristida oligantha	prairie threeawn		1.02	3.35		Weaver, 1919
264	Aristida pungens	Drinn		0.08	0.26		Price, 1911
265	Aristida purpurea	purple threeawn		0.95	3.12		Gibbens and Lenz, 2001;
266	Aristida purpurea	purple threeawn		1.7	5.58		Gibbens and Lenz, 2001;
267	Aristida purpurea	purple threeawn		1.3	4.27		Weaver, 1919
268	Aristolochia Giberti			1.8	5.91		Rawitscher, 1948
269	Armeniaca vulgaris	Wild apricot		3.6	11.81		Nesterova, 1996
270	Artemisia californica	California Sagebrush					
271	Artemisia cana	Silver Sagebrush					
272	Artemisia douglasiana	Douglas' Wormwood					
273	Artemisia dracunculus	Dragon Wormwood	Asteraceae	2.1	6.89		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
274	Artemisia filifolia	sand sagebrush		3.35	10.99		Weaver, 1919
275	Artemisia frigida	fringed sagebrush		0.51	1.67		Coupland & Johnson, 1965
276	Artemisia frigida	fringed sagebrush		0.66	2.17		Coupland & Johnson, 1965
277	Artemisia frigida	fringed sagebrush		0.66	2.17		Coupland & Johnson, 1965
278	Artemisia frigida	fringed sagebrush		0.78	2.56		Coupland & Johnson, 1965
279	Artemisia frigida	fringed sagebrush		0.81	2.66		Coupland & Johnson, 1965
280	Artemisia frigida	fringed sagebrush		0.88	2.89		Coupland & Johnson, 1965
281	Artemisia frigida	fringed sagebrush		1.02	3.35		Coupland & Johnson, 1965
282	Artemisia frigida	fringed sagebrush		1.47	4.82		Coupland & Johnson, 1965
283	Artemisia frigida	fringed sagebrush		1.47	4.82		Coupland & Johnson, 1965
284	Artemisia frigida	fringed sagebrush		2.36	7.74		Weaver, 1919
285	Artemisia herba-alba			0.35	1.15		Badia et al., 2011
286	Artemisia rothrockii	Rothrock Sagebrush					
287	Artemisia santolinifolia			1.4	4.59		Nesterova, 1996
288	Artemisia spinescens	Bud sage	Asteraceae	1.28	4.20		Manning & Groeneveld 1989
289	Artemisia spinescens	Bud sage	Asteraceae	1.28	4.20		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
290	Artemisia terra-albae			0.97	3.18		Baitulin, 1996
291	artemisia tridentata	big sagebrush		2.5	8.20		Klepper et al., 1985
292	artemisia tridentata	big sagebrush		2.15	7.05		Link et al., 1994
293	artemisia tridentata	big sagebrush		0.55	1.80		Pearson, 1965
294	artemisia tridentata	big sagebrush		2.25	7.38		Reynolds & Fraley, 1989
295	artemisia tridentata	big sagebrush		2.5	8.20		Reynolds & Fraley, 1989
296	artemisia tridentata	big sagebrush		2.5	8.20		Richards & Caldwell 1987
297	artemisia tridentata	big sagebrush		1.52	4.99		Sturges & Trlic A, 1978
298	artemisia tridentata	big sagebrush		2.13	6.99		Sturges & Trlic A, 1978
299	artemisia tridentata	big sagebrush		2.43	7.97		Sturges & Trlic A, 1978
300	artemisia tridentata	big sagebrush		1.47	4.82		Tabler, 1964
301	artemisia tridentata	big sagebrush		1.63	5.35		Tabler, 1964
302	artemisia tridentata	big sagebrush		1.65	5.41		Tabler, 1964
303	artemisia tridentata	big sagebrush		1.83	6.00		Tabler, 1964
304	artemisia tridentata	big sagebrush		0.75 - 1	2.46-3.28		Abbott et al. 1991
305	artemisia tridentata	sagebrush / bluebunch		> 1.6	>5.25		Cline et al. 1977
306	Artemisia tridentata	big sagebrush		0.52	1.71		Castelli et al., 2000
307	Artemisia tridentata	big sagebrush		0.91	2.99		Castelli et al., 2000
308	Artemisia tridentata	Big Sagebrush	Asteraceae	1.14	3.74	1	Klepper et al. 1985
309	Artemisia tridentata	Big Sagebrush	Asteraceae	1.7	5.58	1	Klepper et al. 1985
310	Artemisia tridentata	Big Sagebrush	Asteraceae	1.72	5.64	1	Klepper et al. 1985
311	Artemisia tridentata	Big Sagebrush	Asteraceae	1.87	6.14	1	Klepper et al. 1985
312	Artemisia tridentata	Big Sagebrush	Asteraceae	1.96	6.43	1	Klepper et al. 1985
313	Artemisia tridentata	Big Sagebrush	Asteraceae	2	6.56	1	Klepper et al. 1985
314	Artemisia tridentata	Big Sagebrush	Asteraceae	2.15	7.05	1	Klepper et al. 1985
315	Artemisia tridentata	Big Sagebrush	Asteraceae	2.19	7.19	1	Klepper et al. 1985
316	Artemisia tridentata	Big Sagebrush	Asteraceae	2.35	7.71	1	Klepper et al. 1985
317	Artemisia tridentata	Big Sagebrush	Asteraceae	2.45	8.04	1	Klepper et al. 1985
318	Artemisia tridentata	Big Sagebrush	Asteraceae	2.5	8.20	1	Klepper et al. 1985

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
319	Artemisia tridentata	Big Sagebrush	Asteraceae	3	9.84	1	Link et al. 1995
320	Artemisia tridentata	Big Sagebrush		2.3	7.55	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
321	Artemisia tridentata spp.	Parish's sagebrush					
322	Artemisia tridentata ssp.		Asteraceae	2.01	6.59		Manning & Groeneveld 1989
323	Artemisia tridentata ssp. tridentata	Basin big sagebrush	Asteraceae	2.01	6.59		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
324	Arthrocnemum subterminale	Parish's Glasswort					
325	Arundinaria alpina	African Mountain		3.96	12.99		Pereira and Hosegood,
326	Arundo donax	Giant Reed	Poaceae	4.9	16.08		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
327	Asclepia incarnata	swamp milkweed		0.08	0.26		Sherff, 1912
328	Asclepias verticillata	dwarf milkweed		1.21	3.97		Weaver, 1919
329	Aster oblongifolius	blue aster		0.73	2.40		Sperry, 1935
330	Aster canescens	hoary aster		1.55	5.09		Klepper et al., 1985
331	Aster ericoides	white heath aster		0.8	2.62		Coupland & Johnson, 1965
332	Aster linosyris	goldilocks aster		0.52	1.71		Lichtenegger & Kutschera-
333	Aster multiflorus	dense flowered		0.72	2.36		Sperry, 1935
334	Aster porteri	Smooth white aster		0.76	2.49		Weaver, 1919
335	Aster spinosus					1	
336	Aster spp.	aster		1.4	4.59		Spence 1937
337	Astragalus arrectus		Fabaceae	1.62	5.31		Weaver 1917
338	Astragalus crassicarpus	ground plum		1.83	6.00		Weaver, 1919
339	Astragalus denudatus			1.5	4.92		Lichtenegger & Kutschera-
340	Astragalus purshii	woollypod milkvetch		1.0 - 1.4	3.28-5.49		Spence 1937
341	Astragalus rigidulus			0.3	0.98		Dorji et al., 2013
342	Astragalus spp	Palouse milkvetch		1.78	5.84		Weaver, 1915
343	Atremisia scopulorum	alpine sagebrush		0.25	0.82		Daubenmire, 1941
344	Atriplex canescens	four-wing saltbush		3.5	11.48	1	Gibbens and Lenz, 2001;
345	Atriplex canescens	four-wing saltbush		3.5	11.48	1	Gibbens and Lenz, 2001;
346	Atriplex canescens	four-wing saltbush		2.03	6.66	1	Lee and Laurenroth,
347	Atriplex canescens	four-wing saltbush		0.6	1.97	1	Wallace et al., 1980
348	Atriplex canescens	Four-wing saltbush	Chenopodiaceae	12	39.37	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
349	Atriplex confertifolia	shadscale		0.6	1.97	1	Wallace et al., 1980
350	Atriplex confertifolia	Shadscale		12	39.37	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
351	Atriplex halimus	Mediterranean saltbush		0.54	1.77		Schwarz, 1938
352	Atriplex halimus	Mediterranean saltbush		8	26.25		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
353	Atriplex hastata					1	
354	Atriplex hymenelytra					1	
355	Atriplex lentiformis	Quailbush				1	
356	Atriplex nummularia	old man saltbush		> 0.5	> 1.64		Slavich et al., 1999
357	Atriplex nummularia	old man saltbush		0.5	1.64		Slavich et al., 1999
358	Atriplex nummularia	old man saltbush		0.5	1.64		Slavich et al., 1999
359	Atriplex nummularia	old man saltbush		0.5	1.64		Slavich et al., 1999
360	Atriplex parryi	Parry's Saltbush				1	
361	Atriplex polycarpa					1	
362	Atriplex prostrata	Fat Hen/Creeping Saltbush					
363	Atriplex spinifera	Spinescale/Mojave Saltbush				1	
364	Atriplex spp.	Saltbush					
365	Atriplex tatarica			0.75	2.46		Fan et al., 2012
366	Atriplex torreyi	Torrey's saltbush		2	6.56		Groeneveld & Crowley, 1988

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367	Atriplex torreyi	Torrey's saltbush	Chenopodiaceae	3.6	11.81		Groeneveld 1989
368	Atriplex torreyi	Torrey's saltbush	Chenopodiaceae	3.6	11.81		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
369	Attalea exigua Drude			0.6	1.97		Rawitscher, 1948
370	Avena barbata			0.5	1.64		Koteen et al., 2011
371	Avena fatua		Poaceae	0.3	0.98		Hull & Muller 1977
372	Avena versicolor	alpine oatgras		0.3	0.98		Lichtenegger, 1996
373	Azadirachta indica	Neem, Nimtree		1.2	3.94		Das & Chaturvedi,
374	Azanza garckeana	azanza, tree, hibiscus,		2.3	7.55		Timberlake & Calvert, 1993
375	Azolla filiculoides	Large Mosquito Fern					
376	Baccharis emoryi					1	
377	Baccharis glutinosa	seep-willow baccharis		0.58	1.90	1	Gary, 1963
378	Baccharis pilularis	Coyote Brush	Asteraceae	3.2	10.50	1	Wright 1928
379	Baccharis pilularis	Coyote Brush	Asteraceae	3.2	10.50	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
380	Baccharis pilularis	Coyote Brush	Asteraceae	3.7	12.14	1	Lech Naumovich, restorationist. 2017 TNC Crowdsourcing Campaign Survey Response.
381	Baccharis pilularis ssp.	Coyote Brush	Asteraceae	1.38	4.53		Williams et al. 1989
382	Baccharis pilularis ssp. consanguinea	Coyote Brush	Asteraceae	1.38	4.53		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
383	Baccharis rosmarinifolia			>> 0.6	>> 1.97		Hoffmann, 1978
384	Baccharis salicifolia	Mule fat	Asteraceae	0.6	1.97	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
385	Baccharis sarothroides					1	
386	Baccharis sergiloides	Desert Baccharis				1	
387	Baccharis spp.	Baccharis					
388	Baccharis viminea					1	
389	Baikiaea plurijuga	Rhodesian Teak		2.1	6.89		Holdo & Timberlake,
390	Baikiaea plurijuga	Rhodesian Teak		1.1	3.61		Timberlake & Calvert, 1993
391	Baikiaea plurijuga	Rhodesian Teak		1.4	4.59		Timberlake & Calvert, 1993
392	Baikiaea plurijuga	Rhodesian Teak		1.5	4.92		Timberlake & Calvert, 1993
393	Baikiaea plurijuga	Rhodesian Teak		3.3	10.83		Timberlake & Calvert, 1993
394	Baikiaea plurijuga	Rhodesian Teak		4.1	13.45		Timberlake & Calvert, 1993
395	Balanites aegyptiaca	desert date, soap berry		1.1	3.61		Timberlake & Calvert, 1993
396	Balsamorhiza careyana	Carey's balsamroot		1.5	4.92		Klepper et al., 1985
397	Balsamorhiza careyana	Carey's balsamroot	Asteraceae	1.5	4.92		Klepper et al. 1985
398	Balsamorhiza sagittata	arrowleaf balsamroot		1.8	5.91		Spence 1937
399	Balsamorhiza sagittata	arrowleaf balsamroot		2.7	8.86		Spence 1937
400	Balsamorhiza sagittata	arrowleaf balsamroot		2.69	8.83		Weaver, 1915
401	Balsamorhiza sagittata	arrowleaf balsamroot	Asteraceae	1.9	6.23		Weaver 1917
402	Balsamorhiza sagittata	arrowleaf balsamroot	Asteraceae	2.7	8.86		Spence 1937
403	Banksia attenuata	candlestick banksia		3.7	12.14		Canham et al., 2012
404	Banksia attenuata B.			4.9	16.08		Farrington et al., 1989
405	Banksia attenuata B.			8	26.25		Farrington et al., 1989
406	Banksia attenuata B.			8	26.25		Farrington et al., 1989
407	Banksia hookeriarra	Banksia		8	26.25		Low and Lamont, 1990
408	Banksia ilicifolia	holly-leaved banksia		3.7	12.14		Canham et al., 2012
409	Banksia prionotes	Banksia		1.8 - 2.6	5.91-8.53		Dawson & Pate, 1996

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410	Baphia massaiensis	Jasmine pea, Sand		0.65	2.13		Timberlake & Calvert, 1993
411	Baphia massaiensis	Jasmine pea, Sand		2	6.56		Timberlake & Calvert, 1993
412	Baphia massaiensis	Jasmine pea, Sand		3	9.84		Timberlake & Calvert, 1993
413	Baptisia bracteata	Longbract wild indigo		2.03	6.66		Weaver, 1919
414	Bartsia alpin A	alpine bartsia,		0.016	0.05		Jonasson & Callaghan,
415	Bashania fangiana	Wind Break Bamboo		1	3.28		Xu et al., 2011
416	Bauhinia petersiana	Kalahari bauhinia,		1	3.28		Timberlake & Calvert, 1993
417	Bauhinia petersiana	Kalahari bauhinia,		1.4	4.59		Timberlake & Calvert, 1993
418	Bauhinia variegata	Orchid tree, Camel's		1	3.28		Das & Chaturvedi,
419	Beilschmeidia sp. Ficus			1.85	6.07		Vance & Nadkarni,
420	Berberis heterophylla			>2.5	>8.20		Bucci et al., 2009
421	Berberis nervosa		Berberidaceae	0.44	1.44		Antos & Halpern 1997
422	Berberis repens	Creeping Barberry		3.05	10.01		Weaver, 1915
423	Besseya plantaginea	White river coraldrops		0.76	2.49		Weaver, 1919
424	Betula glandulosa						
425	Betula nana L. Salix			0.23	0.75		Wang et al., 2016
426	Betula occidentalis	Water Birch					
427	Betula papyrifera	Canoe birch		0.3	0.98		Pulling, 1918
428	Betula pendula	Silver birch		0.8	2.62		Verzunov, 1980
429	Betula sp.	birch		0.85	2.79		Aaltonen, 1920
430	Betula utilis	Himalayan birch		1	3.28		Xu et al., 2011
431	Bidens frondosa	bur marigold,		0.05	0.16		Kohzu et al., 2003
432	Bigelovia hartwegii					1	
433	Biota orientalis	Chinese thuja,		1.1	3.61		Karizumi, 1979
434	Biota orientalis	Chinese thuja,		1.4	4.59		Karizumi, 1979
435	Boerhaavia spicata		Nyctaginaceae	0.3	0.98		Forseth et al. 1984
436	Boerhaavia wrightii		Nyctaginaceae	0.28	0.92		Forseth et al. 1984
437	Bolboschoenus maritimus	Alkali bulrush					
438	Bolboschoenus robustus	Sturdy bullrush					
439	Boltonia asteroides	White doll's daisy		0.06	0.20		Sherff, 1912
440	Bombax ceiba	Red Silk-Cotton; Red		1.6	5.25		Das & Chaturvedi,
441	Boscia albitrunca	Motlopi or Shepherd's		68 - 141	223.10-462.60		Jennings, 1974
442	Boscia albitrunca	Motlopi or Shepherd's		30 - 78.6	98.43-257.87		Jennings, 1974
443	Boscia albitrunca	Motlopi or Shepherd's		20	65.62		Obakeng, 2007
444	Boscia albitrunca	Motlopi or Shepherd's		35	114.83		Obakeng, 2007
445	Boscia albitrunca	Motlopi or Shepherd's		40	131.23		Obakeng, 2007
446	Boscia albitrunca	Motlopi or Shepherd's		70	229.66		Obakeng, 2007
447	Bouteloua eriopoda	black grama		0.45	1.48		Gibbens and Lenz, 2001;
448	Bouteloua eriopoda	black grama		1.6	5.25		Gibbens and Lenz, 2001;
449	Bouteloua eriopoda	black grama		0.6	1.97		Jackson et al., 2002
450	Bouteloua eriopoda	black grama		1.7	5.58		Jackson et al., 2002
451	Bouteloua gracilis	blue grama		0.38	1.25		Coupland & Johnson, 1965
452	Bouteloua gracilis	blue grama		0.4	1.31		Coupland & Johnson, 1965
453	Bouteloua gracilis	blue grama		0.53	1.74		Coupland & Johnson, 1965
454	Bouteloua gracilis	blue grama		0.6	1.97		Coupland & Johnson, 1965
455	Bouteloua gracilis	blue grama		0.75	2.46		Coupland & Johnson, 1965
456	Bouteloua gracilis	blue grama		0.75	2.46		Coupland & Johnson, 1965
457	Bouteloua gracilis	blue grama		0.85	2.79		Coupland & Johnson, 1965
458	Bouteloua gracilis	blue grama		0.9	2.95		Coupland & Johnson, 1965
459	Bouteloua gracilis	blue grama		0.9	2.95		Jackson et al., 2002
460	Bouteloua gracilis	blue grama		0.92	3.02		Lee and Laurenroth,
461	Bouteloua gracilis	blue grama		1.1	3.61		Lee and Laurenroth,
462	Bouteloua gracilis	blue grama		1.17	3.84		Weaver, 1919
463	Bouteloua gracilis	blue grama		1.22	4.00		Weaver, 1919
464	Bouteloua sp. and	Grama, and three awns		0.3	0.98		Brunel, 2009
465	Bowdichia virgilioides			1	3.28		Salis et al., 2014
466	Brachyclados caespitosus			<1	<3.28		Bucci et al., 2009

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467	Brachypodium			0.5	1.64		Koteen et al., 2011
468	Brachystegia boehmii	Prince of Wales		0.7	2.30		Timberlake & Calvert, 1993
469	Brachystegia boehmii	Prince of Wales		1.1	3.61		Timberlake & Calvert, 1993
470	Brachystegia boehmii	Prince of Wales		1.1	3.61		Timberlake & Calvert, 1993
471	Brachystegia boehmii	Prince of Wales		1.2	3.94		Timberlake & Calvert, 1993
472	Brachystegia boehmii	Prince of Wales		1.6	5.25		Timberlake & Calvert, 1993
473	Brachystegia boehmii	Prince of Wales		2	6.56		Timberlake & Calvert, 1993
474	Brachystegia boehmii	Prince of Wales		2.2	7.22		Timberlake & Calvert, 1993
475	Brachystegia boehmii	Prince of Wales		3.3	10.83		Timberlake & Calvert, 1993
476	Brachystegia florabunda			2	6.56		Timberlake & Calvert, 1993
477	Brachystegia florabunda			2.9	9.51		Timberlake & Calvert, 1993
478	Brachystegia florabunda			3.1	10.17		Timberlake & Calvert, 1993
479	Brachystegia florabunda			3.4	11.15		Timberlake & Calvert, 1993
480	Brachystegia longifolia			2.3	7.55		Timberlake & Calvert, 1993
481	Brachystegia longifolia			2.4	7.87		Timberlake & Calvert, 1993
482	Brachystegia longifolia			2.95	9.68		Timberlake & Calvert, 1993
483	Brachystegia longifolia			3.2	10.50		Timberlake & Calvert, 1993
484	Brachystegia longifolia			3.2	10.50		Timberlake & Calvert, 1993
485	Brachystegia longifolia			5.3	17.39		Timberlake & Calvert, 1993
486	Brachystegia spiciformis	Msasa		2.6	8.53		Holdo & Timberlake,
487	Brachystegia spiciformis	Msasa		1.1	3.61		Timberlake & Calvert, 1993
488	Brachystegia spiciformis	Msasa		1.9	6.23		Timberlake & Calvert, 1993
489	Brachystegia spiciformis	Msasa		2	6.56		Timberlake & Calvert, 1993
490	Brachystegia spiciformis	Msasa		2.9	9.51		Timberlake & Calvert, 1993
491	Brachystegia spiciformis	Msasa		2.9	9.51		Timberlake & Calvert, 1993
492	Brachystegia spiciformis	Msasa		3	9.84		Timberlake & Calvert, 1993
493	Brachystegia spiciformis	Msasa		3.7	12.14		Timberlake & Calvert, 1993
494	Brachystegia spiciformis	Msasa		3.8	12.47		Timberlake & Calvert, 1993
495	Brachystegia spiciformis	Msasa		4.3	14.11		Timberlake & Calvert, 1993
496	Brachystegia spiciformis	Msasa		5.5	18.04		Timberlake & Calvert, 1993
497	Brachystegia utilis			1.8	5.91		Timberlake & Calvert, 1993
498	Brachystegia utilis			2.2	7.22		Timberlake & Calvert, 1993
499	Brachystegia utilis			4	13.12		Timberlake & Calvert, 1993
500	Brauneria pallida	purple cone- flower		1.33	4.36		Sperry, 1935
501	Brauneria pallida	coneflower		1.68	5.51		Weaver, 1919
502	Brauneria pallida	coneflower		2.44	8.01		Weaver, 1919
503	Bridelia ferruginea			1	3.28		Mordelet et al., 1997
504	Bridelia ferruginea			1.2	3.94		Mordelet et al., 1997
505	Bromus brizaeformis	rattlesnake brome		1.5	4.92		Hulbert, 1955
506	Bromus commutatus	meadow brome		1.5	4.92		Hulbert, 1955
507	Bromus japanicus	field brome		1.5	4.92		Hulbert, 1955
508	Bromus racemosus	bald brome		1.5	4.92		Hulbert, 1955
509	Bromus stamineus	Harlan brome		0.82	2.69		Nie et al., 2008
510	Bromus stamineus	Harlan brome		1.46	4.79		Nie et al., 2008
511	Bromus sterilis	poverty brome		1.5	4.92		Hulbert, 1955
512	Bromus tectorum	cheatgrass		0.8	2.62		Cline et al. 1977
513	Bromus tectorum	cheatgrass		0.91	2.99		Hironaka 1961
514	Bromus tectorum	cheatgrass		2	6.56		Hulbert, 1955
515	Bromus tectorum	cheatgrass		0.5	1.64		Link et al. 1990
516	Bromus tectorum	cheatgrass		0.3	0.98		Spence 1937
517	Bromus tectorum		Poaceae	1.17	3.84		Harris 1967
518	Bromus tectorum		Poaceae	0.5	1.64		Link et al. 1990
519	Bromus tectorum		Poaceae	0.6	1.97		Link et al. 1995
520	Bromus tectorum		Poaceae	0.8	2.62		Link et al. 1995
521	Bromus tectorum		Poaceae	0.3	0.98		Spence 1937
522	Brosimum alicastrum			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
523	Brosimum alicastrum			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
524	Brosimum alicastrum			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007

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525	Brosimum rubescens			1.5	4.92		Pavlis & Jenik, 2000
526	Buchenavia and			1	3.28		Wittmann & Parolin, 2005
527	Bulbilis dactyloide	buffalo grass		1.85	6.07		Weaver, 1919
528	Burkea africana	Wild syringa		0.9	2.95		Holdo & Timberlake,
529	Burkea africana			0.9	2.95		Lawson et al., 1968
530	Burkea africana	Wild syringa		2.2	7.22		Rutherford, 1983
531	Burkea africana	Wild syringa		0.7	2.30		Timberlake & Calvert, 1993
532	Burkea africana	Wild syringa		0.95	3.12		Timberlake & Calvert, 1993
533	Burkea africana	Wild syringa		1.2	3.94		Timberlake & Calvert, 1993
534	Bursera excelsa			0.9	2.95		Castellanos et al., 1991
535	Butea frondosa	Flame of the Forest,		5.2	17.06		Howard, 1925
536	Byrsonima crassifolia	manteco		<5	<16.40		Foldats & Rutkis, 1975
537	Byrsonima cydoniifolia			0.6 +/- 0.1	1.97 +/- 0.33		Salis et al., 2014
538	Caatinga species			1	3.28		Jimenez et al., 2009
539	Caesalpinia jamesii	caesalpinia		1.95	6.40		Gibbens and Lenz, 2001;
540	Caesalpinia pyramidalis	catingueira		0.67 - 0.78	2.20-2.56		Pinheiro et al., 2013
541	Calamagrostis	purple reedgrass,		0.81	2.66		Weaver, 1919
542	Calamagrostis lapponica	Lappland reedgrass		0.033	0.11		Jonasson & Callaghan,
543	Calamagrostis nutkaensis	Pacific Reedgrass					
544	Calamovilfa longifolia	prairie sandreed		1.8	5.91		Coupland & Johnson, 1965
545	Calamovilfa longifolia	sand reedgrass		2.04	6.69		Stoeckeler, 1938
546	Calamovilfa longifolia	prairie sandreed		1.52	4.99		Weaver, 1919
547	Calligonum caput-			7	22.97		Arndt, et al., 2004
548	Calligonum polygonoides	phog		2.2	7.22		Derbel and Chaieb, 2012
549	Callitriche palustris	water- starworts		0.01	0.03		Sherff, 1912
550	Callitropsis sargentii	Sargent's Cypress					
551	Calluna vulgaris	common heath		0.3	0.98		Chapman, 1979
552	Calluna vulgaris	Scotch heather		0.3	0.98		Lichtenegger & Kutschera-
553	Calluna vulgaris Ulex	common heather,		0.5	1.64		Chapman, 1970
554	Calluna vulgaris Ulex	common heath		0.6	1.97		Chapman, 1979
555	Calluna vulgaris Ulex	common heath		1.3	4.27		Chapman, 1979
556	Calluna vulgaris Ulex	common heath		1.5	4.92		Chapman, 1979
557	Calluna vulgaris Ulex	common heath		1.7	5.58		Chapman, 1979
558	Calluna vulgaris Ulex	common heath		1.8	5.91		Chapman, 1979
559	Calluna vulgaris Ulex	common heath		2	6.56		Chapman, 1979
560	Calocedrus decurrens	Incense-cedar					
561	Camissonia brevipes		Onagraceae	0.19			Forseth et al. 1984
562	Capparis yco Mart.	in the caper family		5	16.40		Rawitscher et al, 1952
563	Caralluma sp.			0.5	1.64		Glover, 1950
564	Carapa procera			0.6	1.97		Lawson et al., 1970
565	Carex acuta Glyceria	Acute Sedge		0.2	0.66	1	Dumortier, 1991
566	Carex aquatilis	water sedge		0.25	0.82	1	Shaver & Billlings, 1975
567	Carex barbarae	Santa Barbara Sedge				1	
568	Carex capillaris	hair-like sedge		0.029	0.10	1	Jonasson & Callaghan,
569	Carex douglasii					1	
570	Carex eleocharis	needle-leaf sedge		0.35	1.15	1	Coupland & Johnson, 1965
571	Carex eleocharis	needle-leaf sedge		0.35	1.15	1	Coupland & Johnson, 1965
572	Carex eleocharis	needle-leaf sedge		0.38	1.25	1	Coupland & Johnson, 1965
573	Carex eleocharis	needle-leaf sedge		0.5	1.64	1	Coupland & Johnson, 1965
574	Carex eleocharis	needle-leaf sedge		0.6	1.97	1	Coupland & Johnson, 1965
575	Carex eleocharis	needle-leaf sedge		0.65	2.13	1	Coupland & Johnson, 1965
576	Carex eleocharis	needle-leaf sedge		0.65	2.13	1	Coupland & Johnson, 1965
577	Carex eleocharis	needle-leaf sedge		0.68	2.23	1	Coupland & Johnson, 1965
578	Carex filifolia	Threadleaf sedge		1.5	4.92	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
579	Carex geyeri	Geyer's sedge		1.6	5.25	1	Spence 1937
580	Carex geyeri	Geyer's sedge	Cyperaceae	1.6	5.25	1	Spence 1937
581	Carex houghtonii	Houghton's sedge		> 0.07(rhizome)	> 0.23	1	Whittle et al., 1998

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582	Carex melanantha			0.55	1.80	1	Nesterova, 1996
583	Carex nebrascensis	Nebraska sedge		0.6	1.97	1	Castelli et al., 2000
584	Carex nebrascensis	Nebraska sedge		1.3	4.27	1	Castelli et al., 2000
585	Carex nebrascensis	Nebraska sedge		0.4	1.31	1	Martin and Chambers,
586	Carex nebrascensis	Nebraska sedge		0.6	1.97	1	Martin and Chambers,
587	Carex nebrascensis	Nebraska sedge		0.8	2.62	1	Martin and Chambers,
588	Carex nebrascensis	Nebraska sedge		0.65	2.13	1	Svejcar & Wright, 1995
589	Carex pennsylvanica	Pennsylvania sedge		0.91	2.99	1	Weaver, 1919
590	Carex serratodens	Twotooth Sedge				1	
591	Carex spp.					1	
592	Carex turkestanica			0.4	1.31	1	Nesterova, 1996
593	Carex varia	early flowering		1.03	3.38	1	Sperry, 1935
594	Carlina acaulis	stemless carline		0.66	2.17		Lichtenegger, 1996
595	Carlina acaulis	stemless carline		1.23	4.04		Lichtenegger, 1996
596	Carlina acaulis	stemless carline		4.08	13.39		Lichtenegger, 1996
597	Carnegiea gigantea	saguaro, Pencil		0.55	1.80		Cannon, 1911
598	Carpinus betulus L.	Oak- hornbeam		> 1.3	> 4.27		Simonovic, 1991
599	Carum caucasicum			1.1	3.61		Lichtenegger & Kutschera-
600	Carya cordiformis	Bitternut hickory		3	9.84		Sprackling and Read,
601	Carya floridana	scrub hickory /		> 1.5	>4.92		Ellsworth & Sternberg,
602	Carya ovata	Shagbark hickory		2.2	7.22		Sprackling and Read,
603	Caryocar brasiliense			0.7	2.30		Salis et al., 2014
604	Casearia sylvestris Sw.			1	3.28		Salis et al., 2014
605	Cassia bauhinioides	twin-leaf senna		1.7	5.58		Gibbens and Lenz, 2001;
606	Cassia mimosoides			0.4	1.31		Gaze et al., 1998
607	Cassia siamea	kassod tree		0.9	2.95		Jonsson, 1988
608	Cassiope hypnoides	moss bell heather		0.09	0.30		Jonasson & Callaghan,
609	Cassiope tetragona	Arctic bell- heather,		0.013	0.04		Jonasson & Callaghan,
610	Castalia odorata	American hite water		0.25	0.82		Sherff, 1912
611	Castanopsis chinensis			0.7	2.30		Hao et al., 2006
612	Castela emoryi special						
613	Catalpa speciosa	Northern catalpa		3.1	10.17		Sprackling and Read,
614	Ceanothus crassifolius	Hoaryleaf ceanothus		> 1.37	>4.49	1	Hellmers et al., 1955
615	Ceanothus crassifolius	Hoaryleaf ceanothus	Rhamnaceae	1.37	4.49	1	Hellmers et al. 1955
616	Ceanothus cuneatus					1	
617	Ceanothus greggii		Rhamnaceae	0.3	0.98	1	Miller & Ng 1977
618	Ceanothus greggii		Rhamnaceae	0.3	0.98	1	Miller & Ng 1977
619	Ceanothus greggii var.	Mojave Desert		> 1.37	>4.49		Hellmers et al., 1955
620	Ceanothus gregii var. vestitus		Rhamnaceae	1.37	4.49		Hellmers et al. 1955
621	Ceanothus leucodermis		Rhamnaceae	3.66	12.01		Hellmers et al. 1955
622	Ceanothus leucodermis	Chaparral whitethorn		> 3.66	> 12.01		Hellmers et al., 1955
623	Ceanothus leucodermis	Chaparral whitethorn		3.66	12.01		Hellmers et al., 1955
624	Ceanothus megacarpus		Rhamnaceae	2.4	7.87		Thomas & Davis 1989
625	Ceanothus megacarpus		Rhamnaceae	1.9	6.23		Thomas & Davis 1989
626	Ceanothus oliganthus	Hairy ceanothus		> 1.83	> 6.00		Hellmers et al., 1955
627	Ceanothus oliganthus	Hairy ceanothus	Rhamnaceae	1.83	6.00		Hellmers et al. 1955
628	Ceanothus ovatus	redroot		4.42	14.50		Weaver, 1919
629	Ceanothus spinosus		Rhamnaceae	3.1	10.17		Thomas & Davis 1989
630	Ceanothus spinosus		Rhamnaceae	2.4	7.87		Thomas & Davis 1989
631	Ceanothus tomentosus					1	

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632	Ceanothus verrucosus					1	
633	Cecropia distachya			0.3	0.98		Pavlis & Jenik, 2000
634	Cecropia ficifolia			0.18	0.59		Pavlis & Jenik, 2000
635	Cecropia pachystachya			1.2	3.94		Salis et al., 2014
636	Cecropia sciadophylla			0.17	0.56		Pavlis & Jenik, 2000
637	Cecropia sciadophylla			0.26	0.85		Pavlis & Jenik, 2000
638	Cedrus deodara	deodar cedar,		2.4	7.87		Karizumi, 1979
639	Cedrus deodara	deodar cedar,		2.4	7.87		Karizumi, 1979
640	Celtis laevigata	Sugar Hackberry		6	19.69		Jackson et al., 1999
641	Celtis mildbraedii			0.6	1.97		Lawson et al., 1970
642	Celtis occidentalis	Hackberry		2.7	8.86		Sprackling and Read,
643	Celtis pallida	Desert Hackberry		1.6	5.25		Midwood et al., 1998
644	Celtis pallida	Desert Hackberry		2	6.56		Midwood et al., 1998
645	Celtis reticulata	Netleaf Hackberry	Ulmaceae	4.6	15.09	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
646	Cephalanthus occidentalis	Common Buttonbush					
647	Cephalophyllum sp.			0.07	0.23		Esler & Rundel, 1999
648	Cercidium floridum					1	
649	Cercis canadensis	redbud		1.8	5.91		Sprackling and Read,
650	Cercocarpus betuloides	Birchleaf mountain-mahogany		> 1.52	> 4.99		Hellmers et al., 1955
651	Cercocarpus betuloides	Birchleaf mountain-mahogany	Rosaceae	1.52	4.99		Hellmers et al. 1955
652	Cercocarpus montanus	Mountain mahogany		1.07	3.51		Berndt and Gibbons, 1958
653	Cercocarpus montanus	Mountain mahogany		1.52	4.99		Berndt and Gibbons, 1958
654	Cercocarpus montanus	Mountain mahogany		1.52	4.99		Berndt and Gibbons, 1958
655	Chamaecyparis lawsoniana	sawara cypress		1.1	3.61		Karizumi, 1979
656	Chamaecyparis lawsoniana	Port Orford Cedar					
657	Chamaecyparis obtusa	Japanese cypress		0.8	2.62		Karizumi, 1979
658	Chamaecyparis obtusa	Japanese cypress		0.9	2.95		Karizumi, 1979
659	Chamaecyparis obtusa	Japanese cypress		1.5	4.92		Karizumi, 1979
660	Chamaecyparis obtusa	Japanese cypress		1.7	5.58		Karizumi, 1979
661	Chamaecyparis pisifera	sawara cypress		1	3.28		Karizumi, 1979
662	Chamaecyparis pisifera var.	sawara cypress		0.5	1.64		Karizumi, 1979
663	Chamaecyparis pisifera var.	sawara cypress		1.1	3.61		Karizumi, 1979
664	Chamaecyparis pisifera var.	sawara cypress		1.2	3.94		Karizumi, 1979
665	Chamaespartium			0.4	1.31		Silva & Rego, 2004
666	Chamaesyce abramsiana		Euphorbiaceae	0.26	0.85		Forseth et al. 1984
667	Chamrenerium	fireweed		0.46	1.51		Weaver, 1919
668	Chamrenerium	fireweed		1.22	4.00		Weaver, 1919
669	Chilopsis linearis	Desert Willow	Bignoniaceae	1.6	5.25	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
670	Chondrilla juncea	rush skeletonwee		2.4	7.87		Lichtenegger & Kutschera-
671	Chrysopsis villosa	hairy false goldenaster		2.4	7.87		Coupland & Johnson, 1965
672	Chrysothamnus	yellow rabbitbrush,		1 - 1.25	3.28-4.10	1	Abbott et al. 1991
673	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		> 3.92	>12.86	1	Dittmer, 1959
674	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		4	13.12	1	Donovan et al., 1996
675	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		2.4	7.87	1	Groeneveld & Crowley, 1988
676	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		2.5	8.20	1	Klepper et al., 1985

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677	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		> 1.55 (2mto guess)	> 5.09	1	Sperry & Hacke, 2002
678	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush		> 1.55	> 5.09	1	Sperry & Hacke, 2002
679	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.47	4.82	1	Klepper et al. 1985
680	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.5	4.92	1	Klepper et al. 1985
681	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.6	5.25	1	Klepper et al. 1985
682	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.7	5.58	1	Klepper et al. 1985
683	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.75	5.74	1	Klepper et al. 1985
684	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	1.85	6.07	1	Klepper et al. 1985
685	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	2	6.56	1	Klepper et al. 1985
686	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	2.1	6.89	1	Klepper et al. 1985
687	Chrysothamnus nauseosus	rubber rabbitbrush, Common rabbitbrush, Mohave rubberbrush	Asteraceae	2.5	8.20	1	Klepper et al. 1985
688	Chrysothamnus nauseosus consimilis					1	
689	Chrysothamnus nauseosus graveolens					1	
690	Chrysothamnus nauseosus mohavensis					1	
691	Chrysothamnus nauseosus oreophilus					1	
692	Chrysothamnus nauseosus					1	
693	Chrysothamnus pumilus					1	
694	Chrysothamnus viscidiflorus	yellow rabbitbrush		1.9	6.23		Reynolds & Fraley, 1989
695	Chrysothamnus viscidiflorus	yellow rabbitbrush		2	6.56		Reynolds & Fraley, 1989
696	Chrysothamnus viscidiflorus	Green rabbitbrush, Stickyleaf rabbitbrush, Yellow rabbitbrush	Asteraceae	1.45	4.76		Klepper et al. 1985
697	Chrysothamnus viscidiflorus	Green rabbitbrush, Stickyleaf rabbitbrush, Yellow rabbitbrush	Asteraceae	1.6	5.25		Klepper et al. 1985
698	Cichorium intybus L.	chicory		1.8	5.91		Gentile et al., 2003
699	Cistus crispus			0.44	1.44		Silva & Rego, 2004
700	Cistus ladanifer	gum rockrose		0.1	0.33		Silva & Rego, 2004
701	Cistus salvifolius			0.47	1.54		Silva & Rego, 2004
702	Citrus medica	sour lime		2	6.56		Howard, 1925
703	Clathrotropis macrocarpa			1.08	3.54		Pavlis & Jenik, 2000
704	Clematis hirsutissima	hairy clematis		1.0 - 1.4	3.28-5.49		Spence 1937
705	Clethra revoluta			1	3.28		Soethe et al., 2006

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706	Cliffortia ruscifolia			1.5	4.92		Higgins et al., 1987
707	Clintonia uniflora	queencup beadlily		0.23 (0.15-0.3)	0.75 (0.49-		Antos, 1988
708	Clintonia uniflora	queencup beadlily	Liliaceae	0.23	0.75		
709	Clusia sp.			0.45	1.48		Soethe et al., 2006
710	Cobresia capilliformis			0.16	0.52		Nesterova, 1996
711	Cochlospermum insigne			1.4	4.59		Rawitscher, 1948
712	Coiliguaya odorifera			> 0.6	> 1.97		Hoffmann, 1978
713	Coleogyne ramosissima		Rosaceae	1.11	3.64		Manning & Groeneveld 1989
714	Colliguaya integerrima			2	6.56		Bucci et al., 2009
715	Collomia heterophylla		Polemoniaceae	0.16	0.52		Antos & Halpern 1997
716	Colophospermum mopane	mopane, mopani,		0.6	1.97		Timberlake & Calvert, 1993
717	Colophospermum mopane	mopane, mopani,		1.1	3.61		Timberlake & Calvert, 1993
718	Colophospermum mopane	mopane, mopani,		1.3	4.27		Timberlake & Calvert, 1993
719	Colophospermum mopane	mopane, mopani,		1.6	5.25		Timberlake & Calvert, 1993
720	Colophospermum mopane	mopane, mopani,		2.8	9.19		Timberlake & Calvert, 1993
721	Combretum adenogonium	Four-leaved bushwillow		1.5	4.92		Timberlake & Calvert, 1993
722	Combretum apiculatum	red bushwillow		1.1	3.61		Timberlake & Calvert, 1993
723	Combretum apiculatum	red bushwillow		1.3	4.27		Timberlake & Calvert, 1993
724	Combretum apiculatum	red bushwillow		1.7	5.58		Timberlake & Calvert, 1993
725	Combretum celastroides	Jesse-bush bushwillow,		0.4	1.31		Timberlake & Calvert, 1993
726	Combretum collinum	Jesse-bush bushwillow,		0.9	2.95		Timberlake & Calvert, 1993
727	Combretum collinum	variable combretum,		2.6	8.53		Timberlake & Calvert, 1993
728	Combretum elaeagnoides	Large- fruited jesse-bush		0.6	1.97		Timberlake & Calvert, 1993
729	Combretum elaeagnoides	Large- fruited jesse-bush		0.6	1.97		Timberlake & Calvert, 1993
730	Combretum hereroense	Mouse- eared		0.8	2.62		Timberlake & Calvert, 1993
731	Combretum hereroense	Mouse- eared		1.9	6.23		Timberlake & Calvert, 1993
732	Combretum imberbe	Leadwood		2.5	8.20		Timberlake & Calvert, 1993
733	Combretum zeyheri	Large- Fruited		1.2	3.94		Timberlake & Calvert, 1993
734	Commiphora glandulosa	Tall firethorn		0.7	2.30		Timberlake & Calvert, 1993
735	Commiphora glandulosa	Tall firethorn		1.3	4.27		Timberlake & Calvert, 1993
736	Commiphora glandulosa	Tall firethorn		1.3	4.27		Timberlake & Calvert, 1993
737	Commiphora mollis	Velvet- Leaved		0.9	2.95		Timberlake & Calvert, 1993
738	Commiphora	Pepper- leaved		0.7	2.30		Timberlake & Calvert, 1993
739	Commiphora	Pepper- leaved		0.7	2.30		Timberlake & Calvert, 1993
740	Commiphora saxicola	myrrh		0.35	1.15		Kutschera-Mitter, 1996
741	Commiphora ugogensis	River corkwood		1.2	3.94		Timberlake & Calvert, 1993
742	Comptonia peregrina L.	sweetfern, sweet-fern		> 0.3(rhizome)	> 0.98		Whittle et al., 1998
743	Condalia microphylla			0.55	1.80		Pelaez et al., 1994
744	Condalia spathulata	Snakewood, etc.		1.36	4.46		Cannon, 1911
745	Conyza canadensis		Asteraceae	0.19	0.62		Antos & Halpern 1997
746	Cordia dodecandra			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
747	Cordia dodecandra			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
748	Cordylanthus ramosus	bushy bird's beak		1.6	5.25		Reynolds & Fraley, 1989
749	Cornulaca monacantha			> 2.4	> 7.87		Veste & Breckle, 1996
750	Cornus alternifolia	Dogwood		0.9	2.95		Sprackling and Read,
751	Cornus sericea	Red-osier Dogwood					
752	Corylus americana	American hazelnut		3.51	11.52		Weaver, 1919
753	Corylus cornuta	beaked hazel		0.081	0.27		Mundell et al., 2007
754	Cotinus coggygria	Smoketree					
755	Cotoneaster megalocarpa			3.5	11.48		Nesterova, 1996
756	Covillea tridentata			0.68	2.23		Cannon, 1911
757	Cowania stansburiana					1	
758	Craniolaria integrifolia			0.35	1.15		Rawitscher, 1948
759	Crataegus mollis	Hawthorn		1.5	4.92		Sprackling and Read,
760	Crataegus monogyna	common hawthorn,		0.73	2.40		Silva & Rego, 2004
761	Crataegus songorica C.	Almaty hawthorn		6.4	21.00		Kokoreva, 1996
762	Crataegus songorica C.	Dzhungarian Hawthorn		4	13.12		Kokoreva, 1996

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763	Crepis capillaris		Asteraceae	0.31	1.02		Antos & Halpern 1997
764	Crepis spp	hawksbeard		> 2.0	> 6.56		Spence 1937
765	Cressa truxillensis	Spreading Alkaliweed					
766	Croton pottsii	leatherweed		1.4	4.59		Gibbens and Lenz, 2001;
767	Croton pottsii	leatherweed		1.6	5.25		Gibbens and Lenz, 2001;
768	Croton pottsii	leatherweed		1.78	5.84		Gibbens and Lenz, 2001;
769	Croton texensis	Texas croton		0.32	1.05		Dittmer, 1959
770	Cryptantha utahensis		Boraginaceae	0.14	0.46		Forseth et al. 1984
771	Cryptocarya alba			> 0.6	> 1.97		Hoffmann, 1978
772	Cryptomeria japonica D.	Japanese sugi pine or		1.8	5.91		Karizumi, 1979
773	Cryptomeria japonica D.	Japanese sugi pine or		2.4	7.87		Karizumi, 1979
774	Cucurbita digitata		Cucurbitaceae	0.63	2.07		Forseth et al. 1984
775	Cunninghami a lanceolata	Chin A-fir (though not		1.6	5.25		Karizumi, 1979
776	Cupressus benthamii	Mexican cypress		7.62	25.00		Hosegood & Howland,
777	Cupressus lusitanica	Mexican White Cedar		7.62	25.00		Hosegood & Howland,
778	Cupressus macrocarpa	Monterey cypress		1.8	5.91		Karizumi, 1979
779	Cupressus macrocarpa	Monterey cypress		4.57	14.99		Pereira and Hosegood,
780	Curatella americana	chaparro, curata or		5	16.40		Foldats & Rutkis, 1975
781	Curatella americana L.			0.8 +/- 0.3	2.62 +/- 0.98		Salis et al., 2014
782	Cycas revoluta	sago palm, king sago,		1	3.28		Karizumi, 1979
783	Cymopterus terebinthinus	turpentine cymopterus		1.6	5.25		Klepper et al., 1985
784	Cynodon dactylon	Coastal' bermudagra		> 1.5	>4.92	1	Franzluebbers &
785	Cystopteris filix-fragilis	brittle bladder-		0.19	0.62		Nesterova, 1996
786	Cytisus multiflorus	white Spanish		0.6	1.97		Silva & Rego, 2004
787	Cytisus striatus	Portuguese broom		0.35	1.15		Silva & Rego, 2004
788	Dactylis glomerata	cock's-foot, orchard		0.87	2.85		Nie et al., 2008
789	Dactylis glomerata	cock's-foot, orchard		0.92	3.02		Nie et al., 2008
790	Dactylorhiza majalis	western marsh		0.09	0.30		Lichtenegger & Kutschera-
791	Dalbergia sissoo	Indian Rosewood		4.5	14.76		Howard, 1925
792	Dalea nana	dwarf dalea		1.3	4.27		Gibbens and Lenz, 2001;
793	Dalea scoparia A.	broom dalea		1.52	4.99		Dittmer, 1959
794	Dalea spinosa					1	
795	Daphne gnidium	flax-leaved daphne		1.52	4.99		Silva & Rego, 2004
796	Dasiphora fruticosa					1	
797	Dasyochloa pulchella	fluffgrass		0.3	0.98		Gibbens and Lenz, 2001;
798	Davilla kunthii			10	32.81		Restom & Napstad,
799	Deschampsia caespitosa	Tufted Hairgrass					
800	Desmanthus cooleyi	Cooley's bundleflowe		2.1	6.89		Gibbens and Lenz, 2001;
801	Deverra scoparia			0.2	0.66		Cannon, 1913
802	Dialium engleranum	Kalahari podberry		2	6.56		Timberlake & Calvert, 1993
803	Dichrostachys cinerea	Kalahari Christmas		20	65.62		Obakeng, 2007
804	Dichrostachys cinerea	Kalahari podberry		1.9	6.23		Timberlake & Calvert, 1993
805	Dichrostachys cinerea	sicklebush, Bell		4	13.12		Timberlake & Calvert, 1993
806	Dicorynia guianensis			1	3.28		Bonal et al., 2000
807	Dicorynia guianensis			1.6	5.25		Bonal et al., 2000
808	Dicotyledonous sp			3	9.84		Cattanio et al., 2004
809	Dicotyledonous sp			3.5	11.48		Cattanio et al., 2004
810	Dimorphocarpa wislizenii	spectacle- pod		0.8	2.62		Gibbens and Lenz, 2001;
811	Diospyro spp.			1.65	5.41		Greenland & Kowal, 1960
812	Diospyros hispida A.DC.			0.5	1.64		Salis et al., 2014
813	Diospyros lycioides	bluebush, star-apple,		2.8	9.19		Timberlake & Calvert, 1993
814	Diplacus longiflorus	Bush monkeyflow		> 0.76	> 2.49		Hellmers et al., 1955
815	Diplopterygium glaucum			< 0.3(rhizome)	<0.98		Du et al., 2010
816	Diplorhynchus	Horn-pod tree, Wild		0.8	2.62		Timberlake & Calvert, 1993
817	Dipterocarp spp.			1.1	3.61		Imai et al., 2010
818	Dipterocarpus costatus			10	32.81		Ohnuki et al., 2008

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819	Dipterocarpus forest	Dipterocarpus		> 32	> 104.99		Montoroi et al. 2016
820	Dipterocarpus forest	Dipterocarpus		26	85.30		Montoroi et al. 2016
821	Dipteryx alata Vogel			1	3.28		Salis et al., 2014
822	Distichlis spicata	seashore saltgrass,		0.61	2.00	1	Weaver, 1919
823	Distichlis spicata	Saltgrass/Seashore Saltgrass	Poaceae	0.6	1.97	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
824	Distichlis stricta					1	
825	Dombeya rotundifolia	South African wild		1.1	3.61		Timberlake & Calvert, 1993
826	Dombeya sp.			2.8	9.19		Timberlake & Calvert, 1993
827	Draba oligosperma	Few-seeded Draba		0.26	0.85		Daubenmire, 1941
828	Dracocephalum imberbe			0.38	1.25		Nesterova, 1996
829	Dupontia fisheri	Fisher's tundragrass		0.27	0.89		Shaver & Billlings, 1975
830	Echinocactus wislizenii			0.2	0.66		Cannon, 1911
831	Echinocereus engelmannii		Cactaceae	0.16	0.52		Cody 1986
832	Echinocereus engelmannii		Cactaceae	0.3	0.98		Nobel et al. 1991
833	Echinolaena sp.			1.5	4.92		Rawitscher, 1948
834	Eichhornia crassipes	Common Water-hyacinth					
835	Elaeagnus angustifolia	silver berry, oleaster,		4.0 - 6.0	13.12-19.69		Karimov & Molotkovski,
836	Elaeis guineensis	African oil palm or		> 5	>16.40		Syahrinudin, 2005
837	Elaeis guineensis	African oil palm or		> 5	>16.40		Syahrinudin, 2005
838	Eleocharis macrostachya	Creeping Spikerush					
839	Eleocharis montevidensis	sand spikerush		0.4	1.31		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
840	Eleocharis palustris	common spike-rush,		0.03	0.10		Sherff, 1912
841	Eleocharis rostellata	Beaked Spikerush	Cyperaceae	0.25	0.82		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
842	Elymus canadensis	Canada wild rye		0.56	1.84		Weaver, 1919
843	Elymus canadensis	Canada wild rye	Poaceae	0.76	2.49		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
844	Elymus caput- medusae	medusahea d		1.02	3.35		Hironaka 1961
845	Elymus condensatus					1	
846	Elymus elymoides	bottlebrush squirreltail		0.5 - 0.75	1.64-2.46		Abbott et al. 1991
847	Elymus elymoides	squirreltail		> 1.0	> 3.28		Reynolds & Fraley, 1989
848	Elymus lanceolatus	stream bank wheatgrass		0.75 - 1	2.46-3.28		Abbott et al. 1991
849	Elymus multisetus	Big Squirrel-tail					
850	Elymus triticoides	creeping wild rye,		1.17	3.84	1	Weaver, 1919
851	Enarganthe actonaria			0.1	0.33		Esler & Rundel, 1999
852	Encelia actoni						
853	Encelia farinosa	brittlebush		0.55	1.80	1	Cannon, 1911
854	Encelia virginensis						
855	Endospermum diadenum			2.3	7.55		Kenzo et al., 2009
856	Entandrophragma	sapele or sapelli		>10	>32.81		Freycon et al., 2015
857	Entandrophragma	sapele or sapelli		3	9.84		Freycon et al., 2015
858	Entandrophragma	sapele or sapelli		5.2	17.06		Freycon et al., 2015
859	Entandrophragma	sapele or sapelli		8	26.25		Freycon et al., 2015
860	Entandrophragma	Mountain Mahogany		0.5	1.64		Timberlake & Calvert, 1993
861	Enterolobium cyclocarpum			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
862	Enterolobium cyclocarpum			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
863	Enterolobium cyclocarpum			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
864	Eperua falcata			2	6.56		Bonal et al., 2000
865	Eperua falcata			3.5	11.48		Bonal et al., 2000
866	Ephedra alata - alenda			1.9	6.23		Derbel and Chaieb, 2012
867	Ephedra californica	California Mormon-tea					
868	Ephedra nevadensis	Nevada ephedra		0.5	1.64		Wallace et al., 1980
869	Ephedra nevadensis	Nevada ephedra	Ephedraceae	0.67	2.20		Manning & Groeneveld 1989

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870	Ephedra nevadensis	Nevada ephedra	Ephedraceae	0.67	2.20		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
871	Ephedra torreyana	Torrey's ephedra		0.7	2.30		Gibbens and Lenz, 2001;
872	Ephedra trifurca	longleaf ephedra		5.1	16.73		Gibbens and Lenz, 2001;
873	Epilobium angustifolium		Onagraceae	0.43	1.41		Antos & Halpern 1997
874	Epilobium paniculatum		Onagraceae	0.25	0.82		Antos & Halpern 1997
875	Equisetum arvense	field horsetail		3	9.84		Coupland & Johnson, 1965
876	Equisetum fluviatile	water horsetail,		2.24	7.35		Stoeckeler, 1938
877	Eragrostis lehmanniana	Lehmann lovegrass		1.2	3.94		Gibbens and Lenz, 2001;
878	Eragrostis obtusiflora					1	
879	Eremalche rotundifolia		Malvaceae	0.31	1.02		Forseth et al. 1984
880	Erianthus ravennae	ravennagras s, elephant		1.25	4.10		Karimov & Molotkovski,
881	Erica australis			0.35	1.15		Silva & Rego, 2004
882	Erica lusitanica	Spanish and Portuguese		1.5	4.92		Silva & Rego, 2004
883	Erica plukenetii			0.4	1.31		Higgins et al., 1987
884	Erica scoparia			0.9	2.95		Silva & Rego, 2004
885	Erica scoparia, E.	besom heath, bell		1.4	4.59		Bakker et al., 2006
886	Erica umbellata			0.2	0.66		Silva & Rego, 2004
887	Ericameria albida	White Rabbitbrush					
888	Ericameria cooperi		Asteraceae	1.03	3.38	1	Cody 1986
889	Ericameria cooperi		Asteraceae	1.35	4.43	1	Cody 1986
890	Ericameria cooperi		Asteraceae	1.3	4.27	1	Manning & Barbour 1988
891	Ericameria cooperi		Asteraceae	1.47	4.82	1	Manning & Groeneveld 1989
892	Ericameria nauseosa	Rubber Rabbitbrush		4	13.12	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
893	Ericameria nauseosa ssp.		Asteraceae	3.6	11.81		Groeneveld 1989
894	Ericameria paniculata						
895	Ericameria teretifolia		Asteraceae	2	6.56		Manning & Groeneveld 1989
896	Erigeron compositus	dwarf mountain		0.09	0.30		Daubenmire, 1941
897	Erigeron pinnastisectu	featherleaf fleabane		0.28	0.92		Daubenmire, 1941
898	Erigeron ursinus	Bear River fleabane		0.1	0.33		Daubenmire, 1941
899	Eriobotrya japanica	Loquat		4.9	16.08		Howard, 1925
900	Eriodictyon crassifolium	Thickleaf yerbasanta		> 1.37	> 4.49		Hellmers et al., 1955
901	Eriodictyon crasssifolium var. nigrescens		Hydrophyllaceae	1.37	4.49		Hellmers et al. 1955
902	Eriogonum fasciculatum	California Buckwheat		1.1	3.61	1	Esler & Rundel, 1999
903	Eriogonum fasciculatum	California buckwheat		> 1.22	> 4.00	1	Hellmers et al., 1955
904	Eriogonum fasciculatum	California Buckwheat	Polygonaceae	1.05	3.44	1	Cody 1986
905	Eriogonum fasciculatum var. foliolosum		Polygonaceae	1.22	4.00		Hellmers et al. 1955
906	Eriogonum flavum	alpine golden		0.99	3.25		Weaver, 1919
907	Eriogonum heracleoides	Parsnip Flower		2.35	7.71		Spence 1937
908	Eriogonum heracleoides	Parsnip Flower		1	3.28		Weaver, 1915
909	Eriogonum heracleoides	Parsnip Flower	Polygonaceae	2.4	7.87		Weaver 1919
910	Eriogonum heracleoides	Parsnip Flower	Polygonaceae	2.35	7.71		Spence 1937
911	Eriogonum inflatum					1	
912	Eriogonum jamesii	James' buckwheat		3.66	12.01		Weaver, 1919
913	Eriogonum microthecum	slender buckwheat		3.66	12.01		Weaver, 1919
914	Eriogonum niveum	snowy buckwheat		1.5	4.92		Klepper et al., 1985
915	Eriogonum niveum	snowy buckwheat	Polygonaceae	1.5	4.92		Klepper et al. 1985
916	Eriophorum angustifolium	tall cottongrass		0.33	1.08		Shaver & Billlings, 1975
917	Eriophorum vaginatum L			0.34	1.12		Wang et al., 2016

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918	Eritrichium argenteum	arctic alpine,		0.24	0.79		Daubenmire, 1941
919	Erodium botrys		Geraniaceae	1.3	4.27		McKell et al. 1962
920	Erucaria boveana			0.07	0.23		Schwarz, 1938
921	Eryngium campestre	field eryngo		4.3	14.11		Lichtenegger & Kutschera-
922	Erythronium montanum	Avalanche Lily		0.19 (0.15-0.2)	0.62 (0.49-		Antos, 1988
923	Erythronium montanum	Avalanche Lily	Liliaceae	0.19	0.62		
924	Erythrophleum	Cooktown Ironwood		>3	>9.84		Eamus et al., 2002
925	Erythrophleum africanum	African blackwood		0.9	2.95		Timberlake & Calvert, 1993
926	Erythrophleum africanum	African blackwood		1.4	4.59		Timberlake & Calvert, 1993
927	Erythrophleum africanum	African blackwood		1.5	4.92		Timberlake & Calvert, 1993
928	Erythrophleum africanum	African blackwood		1.7	5.58		Timberlake & Calvert, 1993
929	Erythrophleum africanum	African blackwood		1.8	5.91		Timberlake & Calvert, 1993
930	Erythrophleum africanum	African blackwood		1.9	6.23		Timberlake & Calvert, 1993
931	Erythrophleum africanum	African blackwood		2.4	7.87		Timberlake & Calvert, 1993
932	Erythrophleum africanum	African blackwood		3.1	10.17		Timberlake & Calvert, 1993
933	Eterolobium cyclocarpum	Guanacaste, Spanish		1.5	4.92		Kellman, 1990
934	Eterolobium cyclocarpum	Guanacaste, Spanish		2.5	8.20		Kellman, 1990
935	Eucalyptus alba x hybrids	white gum		> 6.0	>19.69		Laclau et al., 2004, 2001
936	Eucalyptus astringens	brown mallee		4	13.12		Robinson et al., 2006
937	Eucalyptus camaldulensis	River Red Gum		>7	> 22.97		Hubble et al., 2010
938	Eucalyptus camaldulensis	River Red Gum		5.7	18.70		Jobbagy & Jackson, 2004
939	Eucalyptus camaldulensis	River Red Gum					
940	Eucalyptus citriodora	lemon- scented		0.94	3.08		Haigh, 1966
941	Eucalyptus citriodora	lemon- scented		1.55	5.09		Haigh, 1966
942	Eucalyptus diversicolour	Karri		>20	> 65.62		Hubble et al., 2010
943	Eucalyptus globulus	Tasmanian blue gum		1.5	4.92	1	Sudmeyer et al., 2004
944	Eucalyptus globulus	Tasmanian blue gum		3	9.84	1	Sudmeyer et al., 2004
945	Eucalyptus globulus	Tasmanian blue gum		3	9.84	1	Sudmeyer et al., 2004
946	Eucalyptus globulus	Eucalyptus		0.6	1.97	1	Ben Faber. 2017 TNC Crowdsourcing Campaign Survey Response.
947	Eucalyptus globulus E.	Eucalyptus		5	16.40		Dawson & Pate, 1996
948	Eucalyptus grandis	flooded gum		14	45.93		Christin A et al., 2011
949	Eucalyptus grandis	flooded gum		15.8	51.84		Christin A et al., 2011
950	Eucalyptus grandis	flooded gum		16	52.49		Christin A et al., 2016
951	Eucalyptus grandis	flooded gum		>8	>26.25		Dye, 1996
952	Eucalyptus grandis	flooded gum		>28	>91.86		Dye, 1996
953	Eucalyptus grandis	flooded gum		11	36.09		Laclau et al., 2013
954	Eucalyptus grandis	flooded gum		12	39.37		Laclau et al., 2013
955	Eucalyptus horistes	York gum		10	32.81		Robinson et al., 2006
956	Eucalyptus kochii	Koch's mallee		2	6.56		Sudmeyer et al., 2004
957	Eucalyptus kochii	Koch's mallee		2	6.56		Sudmeyer et al., 2004
958	Eucalyptus kochii	Koch's mallee		5	16.40		Sudmeyer et al., 2004
959	Eucalyptus kochii ssp.	oil mallee		7.75	25.43		Robinson et al., 2006
960	Eucalyptus kochii ssp.	oil mallee		8	26.25		Robinson et al., 2006
961	Eucalyptus kochii ssp.	oil mallee		9	29.53		Robinson et al., 2006
962	Eucalyptus loxophleba	York gum		2	6.56		Robinson et al., 2006
963	Eucalyptus marginata	jarrah		14	45.93		Dell et al., 1983
964	Eucalyptus marginata	jarrah		40	131.23		Dell et al., 1983
965	Eucalyptus marginata	jarrah		14.9	48.88		Kimber, 1974
966	Eucalyptus PF1 (hybrid E.	forest Red Gum x		4	13.12		Bouillet, 2002
967	Eucalyptus pileata E.	chapped mallee, sand		28	91.86		Nulsen et al., 1986
968	Eucalyptus polybractea	Blue mallee		2	6.56		Robinson et al., 2006
969	Eucalyptus polybractea	Blue mallee		5	16.40		Robinson et al., 2006
970	Eucalyptus polybractea	Blue mallee		8	26.25		Robinson et al., 2006

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971	Eucalyptus populnea	Poplar box, Bimble box		5	16.40		Zerihun et al., 2006
972	Eucalyptus populnea E.	Poplar box, Bimble box		1.2	3.94		Zerihun et al., 2006
973	Eucalyptus populnea E.	Poplar box, Bimble box		1.6	5.25		Zerihun et al., 2006
974	Eucalyptus saligna	Sydney blue gum		6.1	20.01		Hosegood & Howland,
975	Eucalyptus sideroxylon	Mugga, Red Ironbark or		27.43	89.99		van Wyk, 1963
976	Eucalyptus spp.	Eucalyptus		10	32.81		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
977	Eucalyptus tereticornis	Forest Red Gum		1.4	4.59		Jonsson, 1988
978	Eucalyptus tereticornis	Mysure gum		4.4	14.44		Ram et al., 2007
979	Eucalyptus tetrodonta	Darwin Stringybark		>4	>13.12		Eamus et al., 2002
980	Eucalyptus tetrodonta			>0.6	>1.97		February et al., 2013
981	Eucalyptus tetrodonta E.	Darwin Stringybark		0.7	2.30		Werner & Murphy, 2001
982	Eucalyptus umbra	Broad- leaved		10	32.81		Westman & Rogers, 1977
983	Euphorbia albomatgin Ata	rattlesnake weed		0.83	2.72		Gibbens and Lenz, 2001;
984	Euphorbia collina			<1	<3.28		Bucci et al., 2009
985	Euphorbia corollata	flowering spurge		1.51	4.95		Sperry, 1935
986	Euphorbia petaloidea			0.686	2.25		Weaver, 1919
987	Euphorbia sp.			0.7	2.30		Glover, 1950
988	Euphorbia wallichii			0.2	0.66		Esler & Rundel, 1999
989	Eurotia ceratoides	Winterfat (White-		3	9.84		Baitulin, 1996
990	Eurotia ceratoides	Winterfat (White-		3	9.84		Baitulin, 1996
991	Eurotia ceratoides	Winterfat (White-		6.1	20.01		Baitulin, 1996
992	Eurotia ceratoides	Winterfat (White-		9.2	30.18		Baitulin, 1996
993	Eurycoma longifolia			1.8	5.91		Becker et al., 1999
994	Euterpe oleracea			2.5	8.20		Cattanio et al., 2004
995	Euterpe precatoria	Cabbage Palm		1	3.28		Da Silva et al., 2015
996	Euthamia occidentalis	Western Goldenrod					
997	Fagraea racemosa			1.2	3.94		Kenzo et al., 2009
998	Fagus crenata	Japanese beech		0.25	0.82		Kubota et al., 2005
999	Fagus crenata	Japanese beech		0.4	1.31		Kubota et al., 2005
1000	Fagus crenata	Japanese beech		1.5	4.92		Kubota et al., 2005
1001	Fagus grandifolia	beech, hickory, oak,		1.35	4.43		Kalisz et al., 1987
1002	Fagus sylvatica	European beech		0.6	1.97		Büttner & Leuschner,
1003	Fagus sylvatica	European beech		0.5	1.64		Claus & George, 2005
1004	Fagus sylvatica	European beech		1	3.28		Schmid & Kazda, 2001
1005	Fagus sylvatica	European beech		1	3.28		Schmid & Kazda, 2005
1006	Faidherbia albida	Acacia albida		2.2	7.22		Alexandre & Ouedraogo,
1007	Faidherbia albida	Acacia albida		5.9	19.36		Alexandre & Ouedraogo,
1008	Faidherbia albida	Acacia albida		7.25	23.79		Roupsard et al., 1999
1009	Faidherbia albida	Apple-ring Acacia, Ana		2.9	9.51		Timberlake & Calvert, 1993
1010	Faidherbia albida	Apple-ring Acacia, Ana		3.3	10.83		Timberlake & Calvert, 1993
1011	Faurea saligna	African Bean,		1.5	4.92		Timberlake & Calvert, 1993
1012	Ferocactus cylindraceus		Cactaceae	0.25	0.82		Nobel 1989
1013	Festuca arizonica	Arizona fescue		0.79	2.59		Berndt and Gibbons, 1958
1014	Festuca arizonica	Arizona fescue		0.85	2.79		Berndt and Gibbons, 1958
1015	Festuca arizonica	Arizona fescue		0.94	3.08		Berndt and Gibbons, 1958
1016	Festuca arundinacea	tall fescue		1.5	4.92		Ash et al., 1975
1017	Festuca arundinacea	tall fescue		1.5	4.92		Ash et al., 1975
1018	Festuca arundinacea	tall fescue		1.5	4.92		Ash et al., 1975
1019	Festuca arundinacea	tall fescue		1.7	5.58		Gentile et al., 2003
1020	Festuca arundinacea	tall fescue		0.92	3.02		Nie et al., 2008
1021	Festuca arundinacea	tall fescue		1.37	4.49		Nie et al., 2008
1022	Festuca idahoensis	Idaho fescue		0.4	1.31		Spence 1937
1023	Festuca idahoensis	Idaho fescue	Poaceae	0.6	1.97		Weaver 1917
1024	Festuca idahoensis	Idaho fescue	Poaceae	0.4	1.31		Spence 1937
1025	Festuca ovina	Hard Fescue		0.034	0.11		Jonasson & Callaghan,
1026	Festuca ovina	Hard Fescue		0.039	0.13		Jonasson & Callaghan,
1027	Festuca ovina ingrata			0.99	3.25		Weaver, 1915

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1028	Festuca pallescens			1.8	5.91		Schulze et al., 1996
1029	Festuca pratensis	meadow fescue,		2.0-3.0	6.56-9.84		Comino & Druetta, 2010
1030	Festuca pratensis	meadow fescue,		2.0-3.0	6.56-9.84		Comino & Druetta, 2010
1031	Festuca pratensis	meadow fescue,		2.0-3.0	6.56-9.84		Comino & Druetta, 2010
1032	Festuca rubra			0.7	2.30		Koteen et al., 2011
1033	Festuca scabrella	Rough Fescue		0.6	1.97		Coupland & Johnson, 1965
1034	Festuca scabrella	Rough Fescue		0.68	2.23		Coupland & Johnson, 1965
1035	Festuca scabrella	Rough Fescue		0.8	2.62		Coupland & Johnson, 1965
1036	Festuca scabrella	Rough Fescue		1.02	3.35		Coupland & Johnson, 1965
1037	Festuca scabrella	Rough Fescue		1.1	3.61		Coupland & Johnson, 1965
1038	Ficus benghalensis	Indian banyan,		4.9	16.08		Howard, 1925
1039	Ficus cotinifolia			2.0-3.0	6.56-9.84		Querejeta et al., 2007
1040	Ficus cotinifolia			2.0-3.0	6.56-9.84		Querejeta et al., 2007
1041	Ficus cotinifolia			2.0-3.0	6.56-9.84		Querejeta et al., 2007
1042	Ficus pertusa Ficus	strangler fig		>2	>6.56		Putz & Holbrook,
1043	Ficus religiosa	sacred fig		5.8	19.03		Howard, 1925
1044	Ficus sycomorus	sycamore fig		24.38	79.99		van Wyk, 1963
1045	Flourensia cernua	tarbush		1	3.28		Gibbens and Lenz, 2001;
1046	Flourensia cernua	tarbush		1.5	4.92		Gibbens and Lenz, 2001;
1047	Flourensia cernua	tarbush		2.2	7.22		Gibbens and Lenz, 2001;
1048	Flourensia cernua	tarbush		3	9.84		Gibbens and Lenz, 2001;
1049	Flourensia cernua	tarbush		3.5	11.48		Gibbens and Lenz, 2001;
1050	Flourensia cernua	tarbush		5.5	18.04		Gibbens and Lenz, 2001;
1051	Flourensia cernua	tarbush, Berlandier's		3	9.84		Gibbens and Lenz, 2001;
1052	Flueggea virosa	white berry- bush		1.5	4.92		Timberlake & Calvert, 1993
1053	Flueggea virosa	white berry- bush		2.9	9.51		Timberlake & Calvert, 1993
1054	Forestiera pubescens	Desert Olive/Dwarf Swamp Privet					
1055	Fouquieria splendens	Ocotillos		0.29	0.95		Bobich & Huxman,
1056	Fouquieria splendens	ocotillo, flaming		0.42	1.38		Nobel & Zutta, 2005
1057	Frangula californica						
1058	Frankenia jamesii					1	
1059	Frankenia salina	Alkali Heath					
1060	Franseria acanthicarpa	flatspine burr		1.54	5.05		Dittmer, 1959
1061	Frasera speciosa	monument plant,		0.76	2.49		Weaver, 1919
1062	Fraxinus americana	white ash		> 2.0	> 6.56		Riestenberg, 1994
1063	Fraxinus americana	white ash		> 1.1	> 3.61		Riestenberg, 1994
1064	Fraxinus americana	white ash		1.8	5.91		Sprackling and Read,
1065	Fraxinus latifolia	Oregon Ash					
1066	Fraxinus pennsylvanica	Green Ash		2.7	8.86		Sprackling and Read,
1067	Fraxinus pennsylvanica	Green Ash		2.7	8.86		Sprackling and Read,
1068	Fraxinus species	Ash		1.83	6.00		Bunger & Thomson,
1069	Fraxinus velutina	Velvet ash or Arizona ash		2.1336	7.00	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
1070	Galium claytoni	Clayton's Bedstraw		0.02	0.07		Sherff, 1912
1071	Gaultheria procumbens L	eastern teaberry,		> 0.08(rhizome)	> 0.26		Whittle et al., 1998
1072	Gaura coccinea	scarlet gaura		0.47	1.54		Gibbens and Lenz, 2001;
1073	Genista germanica	German Greenweed		0.9	2.95		Lichtenegger & Kutschera-
1074	Geraea canescens		Asteraceae	0.27	0.89		Forseth et al. 1984
1075	Geranium caespitosum	purple cluster		0.94	3.08		Weaver, 1919
1076	Geranium vicosissimum	sticky purple geranium		2.9	9.51		Weaver, 1915
1077	Geranium vicosissimum	sticky purple geranium	Geraniaceae	1.94	6.36		Weaver 1917
1078	Geum triflorum var. ciliatum		Rosaceae	1.63	5.35		Weaver 1917
1079	Gilia longiflora	white- flowered		1.27	4.17		Weaver, 1919
1080	Gilla aggregata	scarlet gilia, scarlet		0.71	2.33		Weaver, 1919
1081	Ginkgo biloba Linn.	ginkgo, ginkgo tree,		2.5	8.20		Karizumi, 1979
1082	Gleditsia triacanthos	Thornless honey locust		3.35	10.99		Bunger & Thomson,

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1083	Gleditsia triacanthos	Honey locust		3.1	10.17		Sprackling and Read,
1084	Glycyrrhiza lepidota	American Licorice		4.57	14.99		Weaver, 1919
1085	Goupia glabra			0.7	2.30		Pavlis & Jenik, 2000
1086	Graffenrieda emarginata			0.9	2.95		Soethe et al., 2006
1087	grass ecosystem			4	13.12		Oliveira et al., 2005
1088	Grawia monticola	Grey raisin, silver raisin		0.9	2.95		Timberlake & Calvert, 1993
1089	Grawia sp.	raisin bush		0.8	2.62		Timberlake & Calvert, 1993
1090	Grayia spinosa	spiny hopsage		1.95	6.40		Klepper et al., 1985
1091	Grayia spinosa	spiny hopsage		2.15	7.05		Link et al., 1994
1092	Grayia spinosa	spiny hopsage	Chenopodiaceae	1.95	6.40		Klepper et al. 1985
1093	Grayia spinosa	spiny hopsage	Chenopodiaceae	0.2	0.66		Link et al. 1995
1094	Grayia spinosa	spiny hopsage	Chenopodiaceae	0.96	3.15		Manning & Groeneveld 1989
1095	Grevillea robusta	southern silky oak,		> 3.0	> 9.84		Livesley et al., 2000
1096	Grewia monticola	Grey raisin, silver raisin		1.1	3.61		Timberlake & Calvert, 1993
1097	Grindelia squarrosa	curly-top gumweed,		1.85	6.07		Weaver, 1919
1098	Grindelia squarrosa	Curlycup Gumweed		1.9	6.23		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1099	Grindelia stricta	Oregon Gumweed					
1100	Guibourtia coleosperma	African Rosewood,		1.7	5.58		Holdo & Timberlake,
1101	Guibourtia coleosperma	African Rosewood,		1.6	5.25		Timberlake & Calvert, 1993
1102	Guiera senegalensis			>3.5	>11.48		Gaze et al., 1998
1103	Gussonia barteri			2	6.56		LeRoux et al., 1995
1104	Gutierrezia diversifolia	broom snakeweed,		0.51	1.67		Coupland & Johnson, 1965
1105	Gutierrezia diversifolia	broom snakeweed,		0.51	1.67		Coupland & Johnson, 1965
1106	Gutierrezia diversifolia	broom snakeweed,		0.66	2.17		Coupland & Johnson, 1965
1107	Gutierrezia diversifolia	broom snakeweed,		0.86	2.82		Coupland & Johnson, 1965
1108	Gutierrezia diversifolia	broom snakeweed,		0.93	3.05		Coupland & Johnson, 1965
1109	Gutierrezia diversifolia	broom snakeweed,		1.3	4.27		Coupland & Johnson, 1965
1110	Gutierrezia microcephala		Asteraceae	0.62	2.03	1	Cody 1986
1111	Gutierrezia sarothrae	broom snakeweed		1.05	3.44	1	Lee and Laurenroth,
1112	Gutierrezia sarothrae	broom snakeweed		2.05	6.73	1	Lee and Laurenroth,
1113	Gutierrezia sarothrae	broom snakeweed		1.98	6.50	1	Weaver, 1919
1114	Gutirrezia sarothrae	broom snakeweed		1.5	4.92		Gibbens and Lenz, 2001;
1115	Gutirrezia sarothrae	broom snakeweed		2.4	7.87		Gibbens and Lenz, 2001;
1116	Halostachus caesia			2.4	7.87		Karimov & Molotkovski,
1117	Haloxylon ammodendron	saxaul, black saxaul		3.8	12.47		Dai et al., 2015
1118	Haloxylon ammodendron	saxaul, black saxaul		10	32.81		Xu & Li, 2008
1119	Haloxylon ammodendron	saxaul, black saxaul		3	9.84		Xu & Li, 2008
1120	Haloxylon ammodendron	saxaul, black saxaul		4.65 +/-0.58	15.26 +/- 1.90		Zhou et al., 2017
1121	Haloxylon ammodendron	saxaul, black saxaul		4.88 +/-0.57	16.01 +/- 1.87		Zhou et al., 2017
1122	Haloxylon aphyllum	saxaul, black saxaul		10	32.81		Baitulin, 1996
1123	Haloxylon aphyllum	saxaul, black saxaul		4.1	13.45		Baitulin, 1996
1124	Haloxylon aphyllum	saxaul, black saxaul		7.3	23.95		Baitulin, 1996
1125	Haloxylon articulatum	saxaul		0.31	1.02		Cannon, 1913
1126	Haloxylon persicum	white saxaul		15	49.21		Dai et al., 2015
1127	Haloxylon scoparium	saxaul		1.13	3.71		Cannon, 1913
1128	Haplopappus sp.			0.4	1.31		Hoffmann, 1978
1129	Haplopappus spinulosus	acy tansyaster		1.6	5.25		Coupland & Johnson, 1965
1130	Haplophyllum tuberculatum			0.3	0.98		Schwarz, 1938
1131	Hedysarum boreale					1	
1132	Helianthella douglasii	Douglas' helianthella		1.65	5.41		Weaver, 1915
1133	Helianthella uniflora var.		Asteraceae	1.36	4.46		Weaver 1917
1134	Helianthus annuns	sunflower		1.2	3.94		Angadi & Entz, 2002
1135	Helianthus annuns	sunflower		1.8	5.91		Angadi & Entz, 2002
1136	Helianthus rigidus	stiff sunflower		1.27	4.17		Weaver, 1919

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1137	Helianthus scaberrimus	sunflowers		0.88	2.89		Sperry, 1935
1138	Heliotropium convolvulace	Phlox heliotrope		0.64	2.10		Weaver, 1919
1139	Heliotropium curassavicum					1	
1140	Heliotropium rotundifolium			0.3	0.98		Schwarz, 1938
1141	Henophyton deserti			0.75	2.46		Cannon, 1913
1142	Henophyton deserti			1.6	5.25		Derbel and Chaieb, 2012
1143	Hesperocyparis pygmaea	Pygmy Cypress					
1144	Hesperostipa comata		Poaceae	1.22	4.00		Klepper et al. 1985
1145	Hesperostipa comata		Poaceae	1.34	4.40		Klepper et al. 1985
1146	Hesperostipa comata		Poaceae	1.38	4.53		Klepper et al. 1985
1147	Hesperostipa comata		Poaceae	1.6	5.25		Klepper et al. 1985
1148	Heteromeles arbutifolia	Toyon	Rosaceae	0.3	0.98		Miller & Ng 1977
1149	Heteromeles arbutifolia	Toyon	Rosaceae	1.98	6.50		Hellmers et al. 1955
1150	Heterotheca grandiflora					1	
1151	Heterotheca oregona	Oregon Goldenaster					
1152	Heuchera cylindrica var.		Saxifragaceae	1.55	5.09		Weaver 1917
1153	Heuchera glabella	beautiful alumroot		1.8	5.91		Weaver, 1915
1154	Hieracium scouleri	Scouler's woollyweed		1.9	6.23		Spence 1937
1155	Hieracium scouleri	Scouler's woollyweed		2.36	7.74		Weaver, 1915
1156	Hieracium scouleri	Scouler's woollyweed	Asteraceae	2.05	6.73		Weaver 1917
1157	Hieracium scouleri	Scouler's woollyweed	Asteraceae	1.9	6.23		Spence 1937
1158	Hilaria mutica	tobosa, tobosagrass		0.73	2.40		Briones et al., 1996
1159	Hilaria rigida			0.4	1.31		Esler & Rundel, 1999
1160	Hippophae rhamnoides	common sea-		2.05	6.73		Turekhanova, 1996
1161	Hirpicium alienatum			0.4	1.31		Carrick, 2003
1162	Holus lanatus	Yorkshire fog, sweet		1	3.28		Dumortier, 1991
1163	Hoorebekia (Aplopappus)			3.35	10.99		Weaver, 1915
1164	Hordeum brachyantherum	Meadow Barley					
1165	Hordeum leporinum	Mouse Barley	Poaceae	0.762	2.50		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
1166	Hordeum murinum L.	wall barley, false barley		0.1	0.33		Price, 1911
1167	Hydrangea paniculata	panicled hydrangea		0.2	0.66		Kohzu et al., 2003
1168	Hydrocotyle ranunculoides	Floating Marsh-pennywort					
1169	Hymenocardia acida			1.2	3.94		Timberlake & Calvert, 1993
1170	Hymenoclea monogyra					1	
1171	Hymenoclea salsola		Asteraceae	1.95	6.40	1	Cody 1986
1172	Hymenoclea salsola		Asteraceae	1.02	3.35	1	Manning & Groeneveld 1989
1173	Hymenopappus flavescens	wooly-white		0.86	2.82		Gibbens and Lenz, 2001;
1174	Hyparrhenia diplandra			1.7	5.58		LeRoux et al., 1995
1175	Hyparrhenia spp.			0.75	2.46		Mordelet et al., 1997
1176	Hyparrhenia spp.			0.8	2.62		Mordelet et al., 1997
1177	Hypericum scabrum			0.74	2.43		Nesterova, 1996
1178	Hyptis emoryi	Desert Lavender					
1179	Ilex crenata	Japanese holly, box-		0.18	0.59		Kohzu et al., 2003
1180	Imperata cylindrica	blady grass, cogon grass,		1.8	5.91		Syahrinudin, 2005
1181	Imperata cylindrica	blady grass, cogon grass,		1.8	5.91		Syahrinudin, 2005
1182	Ipomoea leptophylla	bush morning-		1.85	6.07		Dittmer, 1959
1183	Ipomoea leptophylla	bush morning		3.05	10.01		Weaver, 1919
1184	Iris laevigata	Rabbit-ear iris		0.3	0.98		Kohzu et al., 2003
1185	Iris missouriensis	western blue		1.17	3.84		Weaver, 1915
1186	Iris versicolor	Blue Flag, Harlequin		0.1	0.33		Sherff, 1912
1187	Isachne globosa	bloodgrass		0.15	0.49		Kohzu et al., 2003
1188	Ischyrolepis gaudichaudia			0.2	0.66		Higgins et al., 1987
1189	Isoberlinia angolensis			1.6	5.25		Timberlake & Calvert, 1993
1190	Isoberlinia angolensis			2.7	8.86		Timberlake & Calvert, 1993
1191	Isoberlinia angolensis			3.4	11.15		Timberlake & Calvert, 1993
1192	Isoberlinia angolensis			3.4	11.15		Timberlake & Calvert, 1993

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1193	Isoberlinia angolensis			3.7	12.14		Timberlake & Calvert, 1993
1194	Isocoma acradenia	Alkali Goldenbush/Alkali Jimmyweed				1	
1195	Isocoma menziesii					1	
1196	Isocoma tenuisecta	Burroweed or Shrine jimmyweed	Asteraceae	5.4864	18.00		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
1197	Isoetes eludens			0.03	0.10		Roux et al., 2009
1198	Iva dealbata	wooly sumpweed		3.1	10.17		Gibbens and Lenz, 2001;
1199	Ivesia kingii	King's Mousetail/King's Ivesia					
1200	Ixora sp.			1.1	3.61		Becker et al., 1999
1201	Jatropha curcas	Barbados Nut, Purging		1.4	4.59		Krishnamurthy et al., 2012
1202	Jaumea carnosa	Fleshy Jaumea					
1203	Juglans californica	California Walnut		1.8	5.91		Ben Faber, soil scientist. 2017 TNC Crowdsourcing Campaign Survey Response.
1204	Juglans hindsii	Northern California Black Walnut					
1205	Juglans microcarpa					1	
1206	Juglans nigra	Black walnut		3.4	11.15		Sprackling and Read,
1207	Juglans regia×nigra	eastern black walnut		4.7	15.42		Germon et al. 2016
1208	Juglans regia×nigra L.	Black walnut		> 4.0	>13.12		Cardin Ael et al., 2015
1209	Juglans ruvestris	Western black walnut		1.83	6.00		Bunger & Thomson,
1210	Julbernardia globiflora	Mnondo		0.6	1.97		Timberlake & Calvert, 1993
1211	Julbernardia globiflora	Mnondo		1.7	5.58		Timberlake & Calvert, 1993
1212	Julbernardia paniculata	muchesa		1.3	4.27		Timberlake & Calvert, 1993
1213	Julbernardia paniculata	muchesa		2	6.56		Timberlake & Calvert, 1993
1214	Julbernardia paniculata	muchesa		3.7	12.14		Timberlake & Calvert, 1993
1215	Julbernardia paniculata	muchesa		3.7	12.14		Timberlake & Calvert, 1993
1216	Julbernardia paniculata	muchesa		4.6	15.09		Timberlake & Calvert, 1993
1217	Juncus acutus	Spiny Rush					
1218	Juncus arcticus	Arctic Rush		0.21	0.69		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
1219	Juncus arcticus var. balticus						
1220	Juncus arcticus var.						
1221	Juncus balticus					1	
1222	Juncus cooperi					1	
1223	Juncus effusus	Soft Rush					
1224	Juncus lescurii						
1225	Juncus oxymeris						
1226	Juncus patens	Spreading Rush					
1227	Juncus xiphioides						
1228	Juniper ashei	Ashe Juniper		6	19.69		Jackson et al., 1999
1229	Juniper ashei	Ashe Juniper		7	22.97		Jackson et al., 1999
1230	Juniper ashei	Ashe Juniper		7	22.97		Jackson et al., 1999
1231	Juniperus chinensis var.	Chinese juniper		0.6	1.97		Karizumi, 1979
1232	Juniperus communis L.	common juniper		0.98	3.22		Karasz, 1996
1233	Juniperus conferta Parl.	shore juniper		0.6	1.97		Karizumi, 1979
1234	Juniperus phoenicea	Phoenicean Juniper		2.5	8.20		Armas et al., 2010
1235	Juniperus scopulorum					1	
1236	Juniperus sp.	juniper		1	3.28		Riestenberg, 1994
1237	Juniperus spp.	juniper		4	13.12		Karimov & Molotkovski,
1238	Juniperus taxifolia	Bonin Islands		0.4	1.31		Karizumi, 1979
1239	Juniperus turkestanica	Turkestan juniper,		1.6	5.25		Nesterova, 1996
1240	Juniperus utilis Koidz.	needle juniper		0.7	2.30		Karizumi, 1979
1241	Juniperus virginiana	Eastern red cedar		2.7	8.86		Sprackling and Read,
1242	Juniperus virginiana	Eastern red cedar		2.7	8.86		Sprackling and Read,
1243	Juniperus virginiana	Eastern red cedar		7.92	25.98		Bunger & Thomson,
1244	Justicia californica	California Water-willow					

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1245	Kaeleria cristata	prairie Junegrass		0.41	1.35		Weaver, 1919
1246	Kallstroemia grandiflora		Zygophyllaceae	0.54	1.77		Forseth et al. 1984
1247	Kalmia angustifolia	sheep laurel,		> 0.3(rhizome)	> 0.98		Whittle et al., 1998
1248	Karelinia caspia			3.4	11.15		Baitulin, 1996
1249	Karelinia caspia			2.2	7.22		Vonlanthen et al., 2010
1250	Karelinia caspia			1.6	5.25		Fan et al., 2012
1251	Keteleeria davidiana			4.1	13.45		Karizumi, 1979
1252	Kirkia acuminata	white seringa		1.1	3.61		Timberlake & Calvert, 1993
1253	Kobresia pygmaea	bog sedges		0.1	0.33		Dorji et al., 2013
1254	Kochia prostrata	forage kochia		7.3	23.95		Baitulin, 1996
1255	Kochia prostrata	forage kochia		4.1	13.45		Sobotik, 1996
1256	Kochia prostrata	forage kochia		6.36	20.87		Sobotik, 1996
1257	Koeberlinia spinosa	crucifixion thorn		3.3	10.83		Gibbens and Lenz, 2001;
1258	Koeberlinia spinosa	crucifixion thorn		6	19.69		Gibbens and Lenz, 2001;
1259	Koeberlinia spinosa		Koeberlineaceae	5.2	17.06		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
1260	Koeleria cristata	prairie Junegrass		0.33	1.08		Coupland & Johnson, 1965
1261	Koeleria cristata	prairie Junegrass		0.58	1.90		Coupland & Johnson, 1965
1262	Koeleria cristata	prairie Junegrass		0.6	1.97		Coupland & Johnson, 1965
1263	Koeleria cristata	prairie Junegrass		0.6	1.97		Coupland & Johnson, 1965
1264	Koeleria cristata	prairie Junegrass		0.6	1.97		Coupland & Johnson, 1965
1265	Koeleria cristata	prairie Junegrass		0.6	1.97		Coupland & Johnson, 1965
1266	Koeleria cristata	prairie Junegrass		0.65	2.13		Coupland & Johnson, 1965
1267	Koeleria cristata	prairie Junegrass		0.75	2.46		Coupland & Johnson, 1965
1268	Koeleria cristata	June grass		0.71	2.33		Weaver, 1915
1269	Koeleria cristata	June grass		0.53	1.74		Weaver, 1919
1270	Koeleria pyramidata		Poaceae	0.41	1.35		Weaver 1917
1271	Krameria lanceolata	three fans		0.6	1.97		Gibbens and Lenz, 2001;
1272	Krameria parvifolia	range ratany,		0.4	1.31		Wallace et al., 1980
1273	Krynitzkia virgata	Virgate mountain		0.76	2.49		Weaver, 1919
1274	Kuhnia glutinosa			5.26	17.26		Weaver, 1919
1275	Lactuca scariola	prickly lettuce, milk		0.8	2.62		Spence 1937
1276	Lactuca serriola		Asteraceae	0.84	2.76		Klepper et al. 1985
1277	Lactuca serriola		Asteraceae	0.8	2.62		Spence 1937
1278	Lannea humilis			0.6	1.97		Seghieri, 1995
1279	Lantana camara	Apple Leaf, Rain Tree		1	3.28		Timberlake & Calvert, 1993
1280	Lantana camara	big sage, wild sage,		1.9	6.23		Timberlake & Calvert, 1993
1281	Lappula floribunda	manyflower stickseed		1.0 - 1.4	3.28-5.49		Spence 1937
1282	Larix americana	Tamarack		0.1	0.33		Pulling, 1918
1283	Larix kaempferi	Japanese larch		0.56	1.84		Yeatman, 1955
1284	Larix kaempferi	Japanese larch		1.52	4.99		Yeatman, 1955
1285	Larix laricina	larch		1.22	4.00		Bannan, 1940
1286	Larix laricina	tamarack, eastern		0.3	0.98		Lieffers & Rothwell,
1287	Larix laricina	tamarack, eastern		0.3	0.98		Lieffers & Rothwell,
1288	Larix laricina	tamarack, eastern		0.4	1.31		Lieffers & Rothwell,
1289	Larix laricina	tamarack, eastern		0.6	1.97		Lieffers & Rothwell,
1290	Larix leptolepis	Japanese larch,		1	3.28		Karizumi, 1979
1291	Larix leptolepis	Japanese larch,		2.3	7.55		Karizumi, 1979
1292	Larix occidentalis	larch		0.3	0.98		Strong & La Roi, 1983a,
1293	Larix sibirica	Siberia larch		0.8	2.62		Verzunov, 1980
1294	Larix sibirica	Siberia larch		1.36	4.46		Verzunov, 1980
1295	Larix sibirica	Siberia larch		1.85	6.07		Verzunov, 1980
1296	Larrea tridentata	creosote bush		> 0.75	>2.46		Briones et al., 1996
1297	Larrea tridentata	creosote bush		1.6	5.25		Gibbens and Lenz, 2001;
1298	Larrea tridentata	creosote bush		2	6.56		Gibbens and Lenz, 2001;
1299	Larrea tridentata	creosote bush		5.5	18.04		Gibbens and Lenz, 2001;
1300	Larrea tridentata	creosote bush		0.5	1.64		Wallace et al., 1980

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1301	Larrea tridentata	creosote bush	Zygophyllaceae	0.8	2.62		Fonteyn & Mahall 1981
1302	Lasthenia fremontii						
1303	Latuca serriola	prickly lettuce		0.85	2.79		Klepper et al., 1985
1304	Lavandula luisieri	French lavender,		0.31	1.02		Silva & Rego, 2004
1305	Leguminosae Sapotaceae	171 species in 5ha		>18	>59.06		Jipp et al, 1998
1306	Leguminosae Sapotaceae			12	39.37		Nepstad et al., 1994
1307	Leipoldtia pauciflora			0.2	0.66		Shiponeni et al., 2011
1308	Leipoldtia schultzei			0.18	0.59		Carrick, 2003
1309	Lemna minor	Lesser Duckweed					
1310	Leontodon tuberosus	hawkbits (in the		0.75	2.46		Lichtenegger & Kutschera-
1311	Leontopodium			0.23	0.75		Nesterova, 1996
1312	Lepachys pinnata	prairie cone- flower		0.75	2.46		Sperry, 1935
1313	Lepachys pinnata	prairie cone- flower		1.45	4.76		Sperry, 1935
1314	Lepidium latifolium	Broadleaf Pepper-grass				1	
1315	Lepidospartum squamatum	Scalebroom				1	
1316	Leptochloa fascicularis					1	
1317	Leptotaenia multifida	bitter head		1.7	5.58		Weaver, 1915
1318	Lespedeza capitata	roundhead bushclover		2.39	7.84		Weaver, 1919
1319	Leucadendron laureolum	Yellow Tulip		>0.6	>1.97		Lamont et al., 1984
1320	Leucadendron salignum			>3.5	> 11.48		Higgins et al., 1987
1321	Leucaena leucocephala	white leadtree		1.5	4.92		Jonsson, 1988
1322	Lewisia pygmaea (A.	alpine lewisia,		0.1	0.33		Daubenmire, 1941
1323	Leymus cinereus	Basin wild rye		> 1.6	> 5.25		Reynolds & Fraley, 1989
1324	Leymus cinereus	Basin wild rye		> 2.0	>6.56		Reynolds & Fraley, 1989
1325	Leymus cinereus	Basin wild rye		2	6.56		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1326	Leymus cinereus	Basin wild rye		1 - 1.25	3.28-4.10		Abbott et al. 1991
1327	Leymus triticoides	Creeping Wildrye/Beardless Lyme Grass					
1328	Liatris punctata	dotted gayfeather		1.3	4.27		Coupland & Johnson, 1965
1329	Liatris punctata	dotted gayfeather		2.03	6.66		Weaver, 1919
1330	Liatris punctata	dotted gayfeather		4.8	15.75		Weaver, 1919
1331	Liatris scariosa	blazing star		0.35	1.15		Sperry, 1935
1332	Liatris scariosa	blazing star		0.93	3.05		Sperry, 1935
1333	Lilium canadense	Canada lily, wild yellow-		0.1	0.33		Sherff, 1912
1334	Linaria haelava			0.05	0.16		Schwarz, 1938
1335	Linnaea borealis L.	twinflower		> 0.03(rhizome)	> 0.10		Whittle et al., 1998
1336	Linum australe	flax		0.6	1.97		Gibbens and Lenz, 2001;
1337	Liquidambars tyracilgua L .	red gum, yellow		2.44	8.01		Coile, 1937
1338	Lithospermum	narrowleaf stoneseed		3.03	9.94		Weaver, 1919
1339	Lithospermum ruderale	western stoneseed		3	9.84		Spence 1937
1340	Lithospermum ruderale	western stoneseed		1.91	6.27		Weaver, 1915
1341	Lithospermum ruderale	western stoneseed	Boraginaceae	3	9.84		Spence 1937
1342	Lithraea caustica			>> 0.6	>> 1.97		Hoffmann, 1978
1343	Lobelia sessilifolia			0.15	0.49		Kohzu et al., 2003
1344	Lolium arundinaceu	tall fescue		> 0.9	>2.95		Carter and Gregorich,
1345	Lolium perenne	perennial ryegrass		0.76	2.49		Nie et al., 2008
1346	Lolium perenne	perennial ryegrass		1.15	3.77		Nie et al., 2008
1347	Lomatium dissectum var.		Apiaceae	1.4	4.59		Weaver 1917
1348	Lomatium grayi	Gray's biscuitroot,		1.52	4.99		Weaver, 1915
1349	Lonchocarpus capassa	Apple Leaf, Rain Tree		3.4	11.15		Timberlake & Calvert, 1993
1350	Lotus scoparious	Deerweed		> 1.13	> 3.71		Hellmers et al., 1955
1351	Lotus scoparius	Deerweed	Fabaceae	1.13	3.71	1	Hellmers et al. 1955
1352	Ludwigia hexapetala	Six petal water primrose					
1353	Ludwigia palustris	marsh seedbox,		0.01	0.03		Sherff, 1912
1354	Lupinus leucophyllus	velvet lupine		1.65	5.41		Weaver, 1915

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1355	Lupinus leucophyllus	velvet lupine	Fabaceae	1.55	5.09		Weaver 1917
1356	Lupinus ornatus	ornate lupine		3.35	10.99		Weaver, 1915
1357	Lupinus ornatus	ornate lupine	Fabaceae	3.96	12.99		Weaver 1917
1358	Lupinus spp	lupine, lupin		2.4	7.87		Spence 1937
1359	Lycium andersonii	water- jacket,		0.5	1.64		Wallace et al., 1980
1360	Lycium chilense			1.5	4.92		Bucci et al., 2009
1361	Lycium pallidum	pale wolfberry,		0.5	1.64		Wallace et al., 1980
1362	Lycium species	box thorn, black thorn,		1.88	6.17		Bhattachan et al., 2012
1363	Lycopodium complanatum	ground pine, groundceda		0.13	0.43		Roberts & Herty, 1934
1364	Lycopodium cornplanatura	groundcedar, running		> 0.11(rhizome)	> 0.36		Whittle et al., 1998
1365	Lycopodium obscurum L.	rare clubmoss		> 0.12(rhizome)	> 0.39		Whittle et al., 1998
1366	Lycopodium selago	northern firmoss, fir		0.023	0.08		Jonasson & Callaghan,
1367	Lycopus americanus	Water horehound,		0.03	0.10		Sherff, 1912
1368	Lygodesmia Juncea	Rush skeletonplant		3	9.84		Coupland & Johnson, 1965
1369	Lygodesmia juncea	Rush skeletonplant		1.73	5.68		Weaver, 1919
1370	Lygodesmia juncea	Rush skeletonplant		6.4	21.00		Weaver, 1919
1371	Machaeranthera canescens		Asteraceae	1.36	4.46		Klepper et al. 1985
1372	Machaeranthera canescens		Asteraceae	1.38	4.53		Klepper et al. 1985
1373	Machaeranthera canescens		Asteraceae	1.44	4.72		Klepper et al. 1985
1374	Machaeranthera canescens		Asteraceae	1.55	5.09		Klepper et al. 1985
1375	Maclura pomifera	Osage- orange		2.4	7.87		Sprackling and Read,
1376	Madia gracilis		Asteraceae	0.17	0.56		Antos & Halpern 1997
1377	Magnolia virginiana			0.5	1.64		Jones et al., 1996
1378	Maianthemum canadense	Canadian may-lily,		> 0.10(rhizome)	> 0.33		Whittle et al., 1998
1379	Malosma laurina		Anacardiaceae	13.2	43.31		DeSouza et al. 1986
1380	Malosma laurina		Anacardiaceae	5.2	17.06		Thomas & Davis 1989
1381	Malosma laurina		Anacardiaceae	5.4	17.72		Thomas & Davis 1989
1382	Malus domestica	apple		3.4	11.15		Sprackling and Read,
1383	Malus domestica	Baldwin apple tree		1.52	4.99		Sweet, 1933
1384	Malus domestica	Baldwin apple tree		1.83	6.00		Sweet, 1933
1385	Malus domestica	Baldwin apple tree		3.05	10.01		Sweet, 1933
1386	Malus sieversii	wild apple		7.2	23.62		Nesterova, 1996
1387	Malus sylvestris	Hibernal apple		3.12	10.24		Yeager, 1935
1388	Mangifera indica	mango		4.7	15.42		Howard, 1925
1389	Markhamia obtusifolia			0.8	2.62		Timberlake & Calvert, 1993
1390	Marquesia macroura			1.4	4.59		Timberlake & Calvert, 1993
1391	Marquesia macroura			3.8	12.47		Timberlake & Calvert, 1993
1392	Medicago sativa	alfalfa		2	6.56		Gentile et al., 2003
1393	Medicago sativa	alfafa		2.74	8.99	1	Meinzer, 1927
1394	Melaleuca halmaturorum	Swamp Paperbark		0.5	1.64		Mensforth & Walker, 1996
1395	Melia azadirachta	Indian lilac		4	13.12		Howard, 1925
1396	Menodora spinescens	spiny menodora		1.3	4.27		Esler & Rundel, 1999
1397	Menodora spinescens	spiny menodora	Oleaceae	1.25	4.10		Cody 1986
1398	Mentzelia multiflora	Adonis blazingstar		0.56	1.84		Weaver, 1919
1399	Menyanthes trifoliata	bog-bean, buckbean		0.3	0.98		Kohzu et al., 2003
1400	Menyanthes trifoliata	bog-bean, buckbean		1.2	3.94		Kohzu et al., 2003
1401	Mercurialis perennis	dog's mercury		> 0.15	> 0.49		Martin, 1968
1402	Mercurialis perennis	dog's mercury		< 0.10	< 0.33		Martin, 1968
1403	Metasequoia	dawn redwood		2.4	7.87		Karizumi, 1979
1404	Miconia poeppigii			0.46	1.51		Pavlis & Jenik, 2000
1405	Microlaena stipoides	weeping grass		0.71	2.33		Nie et al., 2008
1406	Microlaena stipoides	weeping grass		1.12	3.67		Nie et al., 2008
1407	Millingtonia hortensis	Tree Jasmine,		5.2	17.06		Howard, 1925
1408	Mimosa tenuiflora	Mimosa		0.36	1.18		Pinheiro et al., 2013
1409	Mimulus aurantiacus		Scrophulariaceae	1.52	4.99		Hellmers et al. 1955

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1410	Mimulus bigelovii		Scrophulariaceae	0.07	0.23		Forseth et al. 1984
1411	Miscanthus sinensis	Chinese silver grass,		0.25	0.82		Kohzu et al., 2003
1412	Mohavea breviflora		Scrophulariaceae	0.15	0.49		Forseth et al. 1984
1413	Molinia caerulea	purple moor grass		0.8	2.62		Bakker et al., 2006
1414	Moltkiopsis ciliata			0.6	1.97		Veste & Breckle, 1996
1415	Monoptilon bellioides		Asteraceae	0.07	0.23		Forseth et al. 1984
1416	Monotes africanus			1.1	3.61		Timberlake & Calvert, 1993
1417	Monotes africanus			1.8	5.91		Timberlake & Calvert, 1993
1418	Monotes africanus			2.3	7.55		Timberlake & Calvert, 1993
1419	Monotes africanus			2.7	8.86		Timberlake & Calvert, 1993
1420	Morella californica	California Wax Myrtle					
1421	Morus alba	Russian mulberry		3.96	12.99		Bunger & Thomson,
1422	Morus alba	Russian mulberry		2.3	7.55		Sprackling and Read,
1423	Morus rubra	Red mulberry		2.4	7.87		Sprackling and Read,
1424	Mouriri elliptica			0.7 +/- 0.2	2.30 +/- 0.66		Salis et al., 2014
1425	Mouriri elliptica			0.6	1.97		Salis et al., 2014
1426	Muhlenbergia arenacea	ear muhly		1.25	4.10		Gibbens and Lenz, 2001;
1427	Muhlenbergia arenacea			1.4	4.59		Weaver, 1919
1428	Muhlenbergia asperifolia	Alkali Muhly					
1429	Muhlenbergia montana	Mountain muhly		0.82	2.69		Berndt and Gibbons, 1958
1430	Muhlenbergia montana	Mountain muhly		0.85	2.79		Berndt and Gibbons, 1958
1431	Muhlenbergia montana	Mountain muhly		1.04	3.41		Berndt and Gibbons, 1958
1432	Muhlenbergia montana	Mountain muhly		1.3	4.27		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1433	Muhlenbergia porteri	bush muthly		0.65	2.13		Gibbens and Lenz, 2001;
1434	Muhlenbergia pungens	Sandhill muhly,		0.84	2.76		Weaver, 1919
1435	Muhlenbergia richardsonis	Mat muhly		0.67	2.20		Castelli et al., 2000
1436	Muhlenbergia richardsonis	Mat muhly		0.85	2.79		Castelli et al., 2000
1437	Muhlenbergia rigens	Deergrass	Poaceae	0.9	2.95		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
1438	Mulinum spinosum			<1	<3.28		Bucci et al., 2009
1439	Mulinum spinosum	neneo, black grass, grass		0.95	3.12		Flombaum & Sala, 2012
1440	Mutisia retusa			0.2	0.66		Hoffmann, 1978
1441	Myoporum laetum	Ngaio Tree/Mousehole Tree					
1442	Myriophyllum spp.	Milfoil					
1443	Myrtus communis	common myrtle		1.1	3.61		Silva & Rego, 2004
1444	Nama hispidum	purple curlleaf		0.8	2.62		Gibbens and Lenz, 2001;
1445	Nassauvia glomerulosa	Piche's tail		2.8	9.19		Schulze et al., 1996
1446	Nassella pulchra			0.7	2.30		Koteen et al., 2011
1447	Nassella pulchra		Poaceae	1	3.28		Hull & Muller 1977
1448	Nectandra ambigens			2	6.56		Jaramello et al., 2003
1449	Neomilspaugia spp.	Gumbo- limbo		9	29.53		Estrada-Medin A et al.,
1450	Nephelium litchi	Litchi		3.8	12.47		Howard, 1925
1451	Nerisyrenia linearifolia	White Sands mustard		0.62	2.03		Gibbens and Lenz, 2001;
1452	Nicotiana glauca	Tree Tobacco					
1453	Nitraria sibirica	white thorn, desert		4.5	14.76		Zhou et al., 2015
1454	Nothofagus	soutern beech		0.5	1.64		Roering et al., 2002
1455	Nothofagus antarctica	Antarctic Beech		2.15	7.05		Schulze et al., 1996
1456	Nothofagus dombeyi	coihue, coigüe		0.8	2.62		Moreno-Chacon &
1457	Nothofagus pumila	lenga beech		1.75	5.74		Schulze et al., 1996
1458	Nymphaea advena	yellow pond- lily		0.25	0.82		Sherff, 1912
1459	Ochna pulchra	Lekkerbreek		1.25	4.10		Holdo & Timberlake,
1460	Ochna pulchra	Lekkerbreek		2.2	7.22		Rutherford, 1983

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1461	Ochna pulchra	Lekkerbreek		1.2	3.94		Timberlake & Calvert, 1993
1462	Ohlorophora excelsa	Iroko		1.1	3.61		Mensah & Jenik, 1968
1463	Ohlorophora excelsa	Iroko		3.5	11.48		Mensah & Jenik, 1968
1464	Olneya tesota	Ironwood					
1465	Onosma arenarium	Orcanette sands		1.3	4.27		Lichtenegger & Kutschera-
1466	Opuntia acanthocarpa		Cactaceae	0.3	0.98		Nobel et al. 1991
1467	Opuntia arborescens	Abrojo, Candelabru		0.91	2.99		Dittmer, 1959
1468	Opuntia camanchica	tulip prickly pear		0.89	2.92		Weaver, 1919
1469	Opuntia fragilis	brittle prickly pear		0.38	1.25		Weaver, 1919
1470	Opuntia rafinesquii	pricklyp ear cactus		0.12	0.39		Sperry, 1935
1471	Opuntia ramosissima		Cactaceae	1.3	4.27		Cody 1986
1472	Opuntia ramossissima			1.47	4.82		Esler & Rundel, 1999
1473	Opuntia rastrera	prickly pear		0.28	0.92		Briones et al., 1996
1474	Oryza gossypium	rice, cotton, cassava		6	19.69		Sommer et al., 2000
1475	Oryzopsis hymenoides	indian rice grass		1.25	4.10		Klepper et al., 1985
1476	Oryzopsis hymenoides	indian rice grass		> 1.5	> 4.92		Reynolds & Fraley, 1989
1477	Ostrowskia magnifica			1.05	3.44		Zhaparova, 1996
1478	Ostrya virginiana	eastern hophornbea		0.9	2.95		Sprackling and Read,
1479	Otholobium fruticans			1.5	4.92		Higgins et al., 1987
1480	Pachycereus pringlei	Mexican giant		1.15	3.77		Niklas et al., 2002
1481	Pachylophus caespitosus			1.14	3.74		Weaver, 1919
1482	Palafoxia linearis		Asteraceae	0.2	0.66		Forseth et al. 1984
1483	Panicum maximum			1.1	3.61		Jaramello et al., 2003
1484	Panicum maximum	Guinea grass,		6	19.69		Jipp et al, 1998
1485	Panicum virgatum	switchgrass		2.74	8.99		Weaver, 1919
1486	Papaver croceum	ice poppy		0.35	1.15		Nesterova, 1996
1487	Parinari curatellifolia	Mupundu, Mobola		1.8	5.91		Timberlake & Calvert, 1993
1488	Parinari curatellifolia	Mupundu, Mobola		1.8	5.91		Timberlake & Calvert, 1993
1489	Parinari curatellifolia	Mupundu, Mobola		2	6.56		Timberlake & Calvert, 1993
1490	Parinari curatellifolia	Mupundu, Mobola		2.9	9.51		Timberlake & Calvert, 1993
1491	Parkinsonia florida	Blue Palo Verde					
1492	Paronychia jamesii	James' nailwort		0.76	2.49		Weaver, 1919
1493	Paronychia pulvinata A.	Rocky Mountain		0.31	1.02		Daubenmire, 1941
1494	Parrotia persica	Persian Ironwood		> 0.7	>2.30		Abdi et al., 2010
1495	Parthenium integrifolium	wild quinine,		1.8	5.91		Sperry, 1935
1496	Paspalum conjugatum			0.9	2.95		Jaramello et al., 2003
1497	Passiflora edulis	passoin fruit		2.5	8.20		Sommer et al., 2000
1498	Pectis papposa		Asteraceae	0.24	0.79		Forseth et al. 1984
1499	Pedicularis aquilina	lousewort, grasses,		0.15	0.49		Cheyney, 1929, 1932
1500	Pedicularis lapponica	Lapland lousewort		0.011	0.04		Jonasson & Callaghan,
1501	Peganum harmala	Esfand, wild rue, Syrian		0.27	0.89		Cannon, 1913
1502	Peganum harmala	Esfand, wild rue, Syrian		0.3	0.98		Cannon, 1913
1503	Peganum harmala	Esfand, wild rue, Syrian		0.61	2.00		Cannon, 1913
1504	Peltophorum africanum	Weeping wattle,		1.6	5.25		Timberlake & Calvert, 1993
1505	Pennisetum clandestinum	kikuyu grass		1.27	4.17		Nie et al., 2008
1506	Pennisetum clandestinum	kikuyu grass		2.01	6.59		Nie et al., 2008
1507	Penstemon glaber		Scrophulariaceae	1.6	5.25		Spence 1937
1508	Penthorum sedoides	Ditch Stonecrop		0.01	0.03		Sherff, 1912
1509	Pentstemon glabra	sawsepal penstemon		1.6	5.25		Spence 1937
1510	Perezianana Hoffmansegg	desert holly, sicklepod		1	3.28		Gibbens and Lenz, 2001;
1511	Pericopsis angolensis			0.7	2.30		Timberlake & Calvert, 1993
1512	Pericopsis angolensis			1.5	4.92		Timberlake & Calvert, 1993
1513	Pericopsis angolensis			2	6.56		Timberlake & Calvert, 1993
1514	Pericopsis angolensis			2	6.56		Timberlake & Calvert, 1993
1515	Persicaria lapathifolia	Curlytop Knotweed					
1516	Petalonyx thurberi					1	
1517	Petalostcmum purpureum	purple prairie		1.3	4.27		Sperry, 1935
1518	Petalostcmum purpureum	purple prairie		1.75	5.74		Sperry, 1935

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
1519	Petalostemon candidus	white prairie		1.68	5.51		Weaver, 1919
1520	Petalostemon candidus	white prairie		1.73	5.68		Weaver, 1919
1521	Petalostemon purpureus	Purple Prairie		1.98	6.50		Weaver, 1919
1522	Petalostemon villosus			1.52	4.99		Weaver, 1919
1523	Phalaris aquatica	bulbous canary		0.94	3.08		Nie et al., 2008
1524	Phalaris aquatica	bulbous canary		1.4	4.59		Nie et al., 2008
1525	Phlomis oreophila			0.55	1.80		Nesterova, 1996
1526	Phlox caespitosa	tufted phlox		0.35	1.15		Daubenmire, 1941
1527	Phlox hoodii	spiny phlox, carpet phlox		0.3	0.98		Coupland & Johnson, 1965
1528	Phlox hoodii	spiny phlox, carpet phlox		0.41	1.35		Coupland & Johnson, 1965
1529	Phlox hoodii	spiny phlox, carpet phlox		0.41	1.35		Coupland & Johnson, 1965
1530	Phlox hoodii	spiny phlox, carpet phlox		0.56	1.84		Coupland & Johnson, 1965
1531	Phlox hoodii	spiny phlox, carpet phlox		0.66	2.17		Coupland & Johnson, 1965
1532	Phlox hoodii	spiny phlox, carpet phlox		0.68	2.23		Coupland & Johnson, 1965
1533	Phlox hoodii	spiny phlox, carpet phlox		0.76	2.49		Coupland & Johnson, 1965
1534	Phlox longifolia	longleaf phlox		0.5	1.64		Spence 1937
1535	Phlox longifolia	longleaf phlox	Polemoniaceae	0.75	2.46		Spence 1937
1536	Photinia arbutifolia	Christmasberry		> 1.98	> 6.50		Hellmers et al., 1955
1537	Phragmites australis	common reed		0.7	2.30	1	Kohzu et al., 2003
1538	Phragmites australis	common reed		2.5	8.20	1	Kohzu et al., 2003
1539	Phragmites australis	Common Reed				1	
1540	Phragmites communis	common reed		0.25	0.82	1	Sherff, 1912
1541	Phyllanthus emblica	Indian gooseberry		5.8	19.03		Howard, 1925
1542	Phyllanthus muelleranus			0.7	2.30		Timberlake & Calvert, 1993
1543	Phyllanthus muelleranus			2.4	7.87		Timberlake & Calvert, 1993
1544	Phyllodoce coerulea	blue heath, purple		0.029	0.10		Jonasson & Callaghan,
1545	Picea abies	Norway spruce		0.8	2.62		Drexhage & Gruber, 1998
1546	Picea abies	Norway spruce		0.8	2.62		Drexhage & Gruber, 1998
1547	Picea abies	Norway spruce		1	3.28		Drexhage & Gruber, 1998
1548	Picea abies	Norway spruce		1.2	3.94		Rastin, 1991
1549	Picea abies	Norway spruce		1.38	4.53		Rastin, 1991
1550	Picea abies	Norway spruce		1.5	4.92		Rastin, 1991
1551	Picea abies	Norway spruce		0.8	2.62		Schmid & Kazda, 2001
1552	Picea abies	Norway Spruce		1	3.28		Schmid & Kazda, 2005
1553	Picea abies, Deschampsia	Norway spruce		0.6	1.97		Claus & George, 2005
1554	Picea bicolor Mayr (Picea	Alcock spruce		0.8	2.62		Karizumi, 1979
1555	Picea Canadensis	white spruce		0.45	1.48		Pulling, 1918
1556	Picea Canadensis	white spruce		0.8	2.62		Pulling, 1918
1557	Picea engelmanni					1	
1558	Picea exelsa Link.	Norway spruce		2.3	7.55		Karizumi, 1979
1559	Picea exelsa Link. (Picea	Norway spruce		1.3	4.27		Karizumi, 1979
1560	Picea glauca	white spruce		1.37	4.49		Bannan, 1940
1561	Picea glauca	white spruce		0.4	1.31		Rood et al., 2011
1562	Picea glauca	white spruce		0.56	1.84		Schultz, 1969
1563	Picea glauca	white spruce		0.84	2.76		Schultz, 1969
1564	Picea glauca	white spruce		0.84	2.76		Schultz, 1969
1565	Picea glauca	white spruce		0.91	2.99		Schultz, 1969
1566	Picea glauca	white spruce		0.94	3.08		Schultz, 1969
1567	Picea glauca	white spruce		1.02	3.35		Schultz, 1969
1568	Picea glauca	white spruce		1.02	3.35		Schultz, 1969
1569	Picea glauca	white spruce		1.12	3.67		Schultz, 1969
1570	Picea glauca	white spruce		1.47	4.82		Schultz, 1969
1571	Picea glauca	white spruce		1.73	5.68		Schultz, 1969
1572	Picea glauca	white spruce		1.78	5.84		Schultz, 1969
1573	Picea glauca	white spruce		1.88	6.17		Schultz, 1969
1574	Picea glauca	white spruce		0.35	1.15		Strong & La Roi, 1983a,
1575	Picea glauca	white spruce		0.5	1.64		Strong & La Roi, 1983a,
1576	Picea glauca	white spruce		0.18	0.59		Wagg, 1967
1577	Picea glauca	white spruce		0.18	0.59		Wagg, 1967

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1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
1578	Picea glauca	white spruce		0.21	0.69		Wagg, 1967
1579	Picea glauca	white spruce		0.24	0.79		Wagg, 1967
1580	Picea glauca	white spruce		0.24	0.79		Wagg, 1967
1581	Picea glauca	white spruce		0.27	0.89		Wagg, 1967
1582	Picea glauca	white spruce		0.3	0.98		Wagg, 1967
1583	Picea glauca	white spruce		0.4	1.31		Wagg, 1967
1584	Picea glauca	white spruce		0.52	1.71		Wagg, 1967
1585	Picea glauca	white spruce		0.88	2.89		Wagg, 1967
1586	Picea glauca	white spruce		1.01	3.31		Wagg, 1967
1587	Picea glauca	white spruce		1.04	3.41		Wagg, 1967
1588	Picea jezoensis var.	Jezo spruce, Yezo spruce,		1.1	3.61		Karizumi, 1979
1589	Picea koyamai	Koyama's spruce		1.6	5.25		Karizumi, 1979
1590	Picea mariana	black spruce		0.3	0.98		Bannan, 1940
1591	Picea mariana	black spruce		0.2	0.66		Lieffers & Rothwell,
1592	Picea mariana	black spruce		0.3	0.98		Lieffers & Rothwell,
1593	Picea mariana	black spruce		0.3	0.98		Lieffers & Rothwell,
1594	Picea mariana	black spruce		0.6	1.97		Lieffers & Rothwell,
1595	Picea mariana	black spruce		0.07	0.23		Pulling, 1918
1596	Picea mariana	black spruce		0.12	0.39		Pulling, 1918
1597	Picea mariana	black spruce		0.33	1.08		Schultz, 1969
1598	Picea mariana	black spruce		0.36	1.18		Schultz, 1969
1599	Picea mariana	black spruce		0.41	1.35		Schultz, 1969
1600	Picea mariana	black spruce		0.41	1.35		Schultz, 1969
1601	Picea mariana	black spruce		0.43	1.41		Schultz, 1969
1602	Picea mariana	black spruce		0.51	1.67		Schultz, 1969
1603	Picea mariana	black spruce		0.51	1.67		Schultz, 1969
1604	Picea mariana	black spruce		0.53	1.74		Schultz, 1969
1605	Picea mariana	black spruce		0.53	1.74		Schultz, 1969
1606	Picea mariana	black spruce		0.56	1.84		Schultz, 1969
1607	Picea mariana	black spruce		0.64	2.10		Schultz, 1969
1608	Picea mariana	black spruce		0.66	2.17		Schultz, 1969
1609	Picea mariana	black spruce		0.66	2.17		Schultz, 1969
1610	Picea mariana	black spruce		0.71	2.33		Schultz, 1969
1611	Picea mariana	black spruce		0.76	2.49		Schultz, 1969
1612	Picea mariana	black spruce		0.99	3.25		Schultz, 1969
1613	Picea mariana	black spruce		1.19	3.90		Schultz, 1969
1614	Picea mariana	black spruce		1.22	4.00		Schultz, 1969
1615	Picea mariana	black spruce		0.1	0.33		Strong & La Roi, 1983a,
1616	Picea mariana	black spruce		0.3	0.98		Strong & La Roi, 1983a,
1617	Picea mariana	black spruce / feather		0.1	0.33		Strong & La Roi, 1983a,
1618	Picea maximowiczii	Japanese bush spruce		0.8	2.62		Karizumi, 1979
1619	Picea schrenkiana	Schrenk's spruce,		1.5	4.92		Nesterova, 1996
1620	Picea sitchensis	Sitka spruce		0.56	1.84		Nicoll & Ray, 1996
1621	Picea sitchensis	Sitka spruce		0.48	1.57		Ray and Nicoll, 1998
1622	Picea sitchensis	Sitka spruce		0.58	1.90		Ray and Nicoll, 1998
1623	Picea sitchensis	Sitka spruce		0.63	2.07		Ray and Nicoll, 1998
1624	Picea sitchensis	Sitka spruce		0.25	0.82		Ray and Schweizer,
1625	Picea sitchensis	Sitka spruce		0.08	0.26		Yeatman, 1955
1626	Picea sitchensis	Sitka Spruce		2	6.56		Day, W.R. (1957) Sitka Spruce in British Columbia. Forestry Commission Bulletin No. 28. London:Imperial Forestry Institute Oxford. Pp.152
1627	Picea sitchensis	Sitka Spruce		1.8	5.91		Burns R.M. and Honkala, B.H (1965) Silvics of Forest Trees of the United States. Volume 1: Conifers. Agriculture Handbook 654. U.S. Department of Agriculture. Available at - http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm
1628	Picea smithiana	Morinda spruce,		1.4	4.59		Karizumi, 1979
1629	Picea sp.	spruce		0.9	2.95		Aaltonen, 1920
1630	Piliostigma thonningii	Camel's foot tree,		1.5	4.92		Timberlake & Calvert, 1993
1631	Piliostigma thonningii	Camel's foot tree,		2	6.56		Timberlake & Calvert, 1993

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1632	Piliostigma thonningii	Camel's foot tree,		2.5	8.20		Timberlake & Calvert, 1993
1633	Pinus Banksiana	jack pine		1.52	4.99		Bannan, 1940
1634	Pinus banksiana	Jack pine		1.68	5.51		Cheyney, 1929, 1932
1635	Pinus banksiana	jack pine		2.9	9.51		Gevorkiantz et al., 1943
1636	Pinus banksiana	Jack pine, grey pine,		2	6.56		Karizumi, 1979
1637	Pinus Banksiana	jack pine		0.5	1.64		Pulling, 1918
1638	Pinus Banksiana	jack pine		0.8	2.62		Pulling, 1918
1639	Pinus banksiana	jack pine		0.3	0.98		Strong & La Roi, 1983a,
1640	Pinus banksiana	jack pine		1.1	3.61		Strong & La Roi, 1983a,
1641	Pinus banksiana	jack pine		1.2	3.94		Strong & La Roi, 1983a,
1642	Pinus banksiana	jack pine		1.5	4.92		Strong & La Roi, 1983a,
1643	Pinus banksiana	jack pine		2	6.56		Strong & La Roi, 1983a,
1644	Pinus bungeana	Bunge's pine,		1.2	3.94		Karizumi, 1979
1645	Pinus caribaea	Caribbean pine		0.4	1.31		Cuevas et al., 1991
1646	Pinus caribaea	Caribbean pine		5	16.40		Haigh, 1966
1647	Pinus contorta	lodgepole pine		1.22	4.00		Berndt and Gibbons, 1958
1648	Pinus contorta	lodgepole pine		0.99	3.25		Bishop, 1962
1649	Pinus contorta	lodgepole pine		0.1	0.33		Boggie, 1977
1650	Pinus contorta	lodgepole pine		0.15	0.49		Boggie, 1977
1651	Pinus contorta	lodgepole pine		0.2	0.66		Boggie, 1977
1652	Pinus contorta	lodgepole pine		0.4	1.31		Boggie, 1977
1653	Pinus contorta	lodgepole pine		0.7	2.30		Horton, 1958
1654	Pinus contorta	lodgepole pine		1.52	4.99		Horton, 1958
1655	Pinus contorta	lodgepole pine		3.51	11.52		Horton, 1958
1656	Pinus contorta	lodgepole pine		0.91	2.99		Preston, 1942
1657	Pinus contorta	lodgepole pine		1.83	6.00		Preston, 1942
1658	Pinus contorta	lodgepole pine		0.45	1.48		Ray and Schweizer,
1659	Pinus contorta	lodgepole pine		0.89	2.92		Yeatman, 1955
1660	Pinus contorta	Lodgepole Pine		3.3	10.83		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1661	Pinus coulteri	Coulter pine					
1662	Pinus densiflora	Korean red pine		0.7	2.30		Karizumi, 1979
1663	Pinus densiflora	Korean red pine		2.9	9.51		Karizumi, 1979
1664	Pinus densiflora	Korean red pine		3.5	11.48		Karizumi, 1979
1665	Pinus densiflora	Japanese red pine		0.13	0.43		Kohzu et al., 2003
1666	Pinus echinata	shortleaf pine		2.74	8.99		McQuilkin, 1935
1667	Pinus echinata	southern short-leaf		1.12	3.67		Turner, 1936
1668	Pinus echinata	southern short-leaf		1.19	3.90		Turner, 1936
1669	Pinus echinata	southern short-leaf		1.27	4.17		Turner, 1936
1670	Pinus echinata Mill.	shortleaf pine		1.02	3.35		Coile, 1937
1671	Pinus edulis	pinon pine		7.62	25.00		Kleinhampl & Koteff, 1960
1672	Pinus edulis Juniperus	pinon pine / juniper		15.24	50.00		Kleinhampl & Koteff, 1960
1673	Pinus edulis Juniperus	pinon pine / juniper		18.29	60.01		Kleinhampl & Koteff, 1960
1674	Pinus edulis Juniperus	pinon pine / juniper		2.13	6.99		Kleinhampl & Koteff, 1960
1675	Pinus edulis Juniperus	pinon pine / juniper		21.34	70.01		Kleinhampl & Koteff, 1960
1676	Pinus edulis Juniperus	pinon pine / juniper		33.53	110.01		Kleinhampl & Koteff, 1960
1677	Pinus edulis Juniperus	pinon pine / juniper		19.81	64.99		Cannon and Starrett, 1956
1678	Pinus elliottii	slash pine		4.57	14.99		Haigh, 1966
1679	Pinus elliottii	slash pine		2.3	7.55		Schultz, 1972
1680	Pinus elliottii	slash pine		2.6	8.53		Schultz, 1972
1681	Pinus elliottii Engelm. var.	slash pine		3.3	10.83		van Rees & Comerford,
1682	Pinus griffithii McCleland	Bhutan pine, blue		1.3	4.27		Karizumi, 1979
1683	Pinus jeffreyi	Jeffrey pine		3.75	12.30		Rose et al., 2003
1684	Pinus koraiensis	Korean pine		2	6.56		Karizumi, 1979
1685	Pinus koraiensis	Korean pine		2.3	7.55		Karizumi, 1979
1686	Pinus luchuensis	Luchu pine, Okin Awa		3.2	10.50		Karizumi, 1979
1687	Pinus nigra	Corsican pine		0.81	2.66		Yeatman, 1955
1688	Pinus palustris	Longleaf pine		2	6.56		Addington et al., 2006
1689	Pinus palustris	Longleaf pine		2.2	7.22		Addington et al., 2006

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1690	Pinus palustris	Longleaf pine		2.13	6.99		Gemmer, 1928
1691	Pinus palustris	longleaf pine		0.74	2.43		Heyward, 1933
1692	Pinus palustris	longleaf pine		1.91	6.27		Heyward, 1933
1693	Pinus palustris	longleaf pine		4.32	14.17		Heyward, 1933
1694	Pinus palustris Mill.	longleaf pine		2.6	8.53		Karizumi, 1979
1695	Pinus patula	Mexican weeping		6.1	20.01		Hosegood & Howland,
1696	Pinus pentaphylla	five-needle pine,		1	3.28		Karizumi, 1979
1697	Pinus pentaphylla	five-needle pine,		1.6	5.25		Karizumi, 1979
1698	Pinus pinaster	Maritime Pine		0.8-1.0	2.62-3.28		Bakker et al., 2006
1699	Pinus pinaster	Maritime Pine		2.5-3.0	8.20-9.84		Bakker et al., 2006
1700	Pinus pinaster	maritime pine		0.9	2.95		Danjon et al., 2005
1701	Pinus pinaster	maritime pine		0.92	3.02		Danjon et al., 2005
1702	Pinus pinaster	maritime pine		0.98	3.22		Danjon et al., 2005
1703	Pinus pinaster	maritime pine, cluster		2.4	7.87		Karizumi, 1979
1704	Pinus pinaster	maritime pine		1.5	4.92		Sudmeyer et al., 2004
1705	Pinus pinaster	maritime pine		1.5	4.92		Sudmeyer et al., 2004
1706	Pinus pinaster	maritime pine		2	6.56		Sudmeyer et al., 2004
1707	Pinus pinaster	maritime pine		2.5	8.20		Sudmeyer et al., 2004
1708	Pinus pinaster	maritime pine		3	9.84		Sudmeyer et al., 2004
1709	Pinus ponderosa	Ponderosa pine		0.85	2.79		Berndt and Gibbons, 1958
1710	Pinus ponderosa	Ponderosa pine		1.52	4.99		Berndt and Gibbons, 1958
1711	Pinus ponderosa	Ponderosa pine		1.71	5.61		Berndt and Gibbons, 1958
1712	Pinus ponderosa	western yellow pine		0.66	2.17		Haasis, 1921
1713	Pinus ponderosa	Ponderosa Pine		3.5	11.48		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1714	Pinus pumila Regel	Siberian dwarf pine,		0.5	1.64		Karizumi, 1979
1715	Pinus radiata	Monterey pine		0.9	2.95		Davis et al., 1983
1716	Pinus radiata	Monterey pine		0.9	2.95		Davis et al., 1983
1717	Pinus radiata	Monterey pine		0.9	2.95		Davis et al., 1983
1718	Pinus radiata	Monterey pine		0.9	2.95		Davis et al., 1983
1719	Pinus radiata	Monterey pine		0.9	2.95		Davis et al., 1983
1720	Pinus Radiata	Monterey Pine		4.57	14.99		Pereira and Hosegood,
1721	Pinus radiata	Monterey pine		2.5	8.20		Sudmeyer et al., 2004
1722	Pinus radiata	Monterey pine		2.5	8.20		Sudmeyer et al., 2004
1723	Pinus radiata	Monterey pine		5	16.40		Sudmeyer et al., 2004
1724	Pinus radiata	Monterey pine		1.73	5.68		Watson & Tumbleson,
1725	Pinus radiata	Monterey pine		1.25	4.10		Zerihun & Montagu,
1726	Pinus resinosa	red pine		0.49	1.61		Day, 1941
1727	Pinus resinosa	red pine		0.79	2.59		Day, 1941
1728	Pinus resinosa	red pine		1.01	3.31		Day, 1941
1729	Pinus resinosa	red pine		1.52	4.99		Day, 1941
1730	Pinus resinosa	red pine		1.89	6.20		Day, 1941
1731	Pinus resinosa	red pine		0.99	3.25		McLaughlin et al., 2011
1732	Pinus resinosa	red pine		1.12	3.67		McLaughlin et al., 2011
1733	Pinus resinosa	red pine		1.19	3.90		McLaughlin et al., 2011
1734	Pinus resinosa	red pine		1.2	3.94		McLaughlin et al., 2011
1735	Pinus resinosa	red pine		1.29	4.23		McLaughlin et al., 2011
1736	Pinus resinosa	red pine		1.31	4.30		McLaughlin et al., 2011
1737	Pinus resinosa	red pine		1.33	4.36		McLaughlin et al., 2011
1738	Pinus resinosa	red pine		1.35	4.43		McLaughlin et al., 2011
1739	Pinus resinosa	red pine		1.36	4.46		McLaughlin et al., 2011

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1740	Pinus resinosa	red pine		1.4	4.59		McLaughlin et al., 2011
1741	Pinus resinosa	red pine		1.43	4.69		McLaughlin et al., 2011
1742	Pinus resinosa	red pine		1.51	4.95		McLaughlin et al., 2011
1743	Pinus resinosa	red pine		1.51	4.95		McLaughlin et al., 2011
1744	Pinus resinosa	red pine		1.6	5.25		McLaughlin et al., 2011
1745	Pinus resinosa	red pine		1.64	5.38		McLaughlin et al., 2011
1746	Pinus resinosa	red pine		1.79	5.87		McLaughlin et al., 2011
1747	Pinus resinosa	red pine		1.84	6.04		McLaughlin et al., 2011
1748	Pinus resinosa	red pine		1.97	6.46		McLaughlin et al., 2011
1749	Pinus resinosa	red pine		2.74	8.99		White & Wood, 1958
1750	Pinus rigida	pitch pine		> 1.52	> 4.97		McQuilkin, 1935
1751	Pinus rigida	pitch pine		1.07	3.51		McQuilkin, 1935
1752	Pinus rigida	pitch pine		1.52	4.99		McQuilkin, 1935
1753	Pinus rigida	pitch pine		2	6.56		McQuilkin, 1935
1754	Pinus rigida	pitch pine		2.74	8.99		McQuilkin, 1935
1755	Pinus rigida Acer rubrum	pitch pine		0.7	2.30		Sain Ju & Good, 1993
1756	Pinus rigida Q.	pitch pine		1.5	4.92		Sain Ju & Good, 1993
1757	Pinus rigida Q. velutin A	pitch pine		3	9.84		Sain Ju & Good, 1993
1758	Pinus rigidrt Mill.	pitch pine		2.6	8.53		Karizumi, 1979
1759	Pinus rigidrt Mill.	pitch pine		3.4	11.15		Karizumi, 1979
1760	Pinus sp.	pine		0.56	1.84		Aaltonen, 1920
1761	Pinus sp.	pine		0.98	3.22		Aaltonen, 1920
1762	Pinus sp.	pine		1	3.28		Aaltonen, 1920
1763	Pinus strobus	white pine		0.4	1.31		Pulling, 1918
1764	Pinus strobus Linn.	eastern white pine,		0.9	2.95		Karizumi, 1979
1765	Pinus strobus Linn.	eastern white pine,		1.2	3.94		Karizumi, 1979
1766	Pinus strobus Linn.	eastern white pine,		1.4	4.59		Karizumi, 1979
1767	Pinus strobus Linn.	eastern white pine,		1.6	5.25		Karizumi, 1979
1768	Pinus strobus Linn.	eastern white pine,		2.4	7.87		Karizumi, 1979
1769	Pinus strobus Linn.	eastern white pine,		2.8	9.19		Karizumi, 1979
1770	Pinus sylvestris	Scots pine		2	6.56		Karizumi, 1979
1771	Pinus sylvestris	Scots pine		1	3.28		Verzunov, 1980
1772	Pinus sylvestris	Scots pine		0.08	0.26		Yeatman, 1955
1773	Pinus sylvestris	Scots pine		0.98	3.22		Yeatman, 1955
1774	Pinus sylvestris var.	Mongolian pine		2.7	8.86		Wei et al., 2013
1775	Pinus sylvestris var.	Mongolian pine		4.7	15.42		Wei et al., 2013
1776	Pinus tabulaeformi	Chinese pine		1	3.28		Zhang et al., 2014
1777	Pinus taeda	loblolly pine		4	13.12		Richter and Markewitz,
1778	Pinus taeda L	loblolly pine		0.91	2.99		Coile, 1937
1779	Pinus taeda L	Loblolly pine		1.9	6.23		Albaugh et al., 2006
1780	Pinus taeda L	Loblolly pine		1.9	6.23		Albaugh et al., 2006
1781	Pinus taeda L	Loblolly pine		3.5	11.48		Albaugh et al., 2006
1782	Pinus taeda Linn.	loblolly pine		2	6.56		Karizumi, 1979
1783	Pinus taeda Linn.	loblolly pine		3.5	11.48		Karizumi, 1979
1784	Pinus taeda Linn.	loblolly pine		3.8	12.47		Karizumi, 1979
1785	Pinus taeda Quercus	loblolly pine, southern		> 0.9	>2.95		Farrish, 1991
1786	Pinus taeda Quercus	loblolly pine, southern		> 0.9	>2.95		Farrish, 1991
1787	Pinus thunbergii	black pine, Japanese		2.3	7.55		Karizumi, 1979
1788	Pinus thunbergii	black pine, Japanese		3.3	10.83		Karizumi, 1979
1789	Piper nigrum	black pepper		2.5	8.20		Sommer et al., 2000
1790	Piptadenia obliqua			0.60 - 0.67	1.97-2.20		Pinheiro et al., 2013
1791	Piptadeniastrumaf			0.7	2.30		Lawson et al., 1970
1792	Piptochaetium	speargrass		0.6	1.97		Pelaez et al., 1994
1793	Pistacia atlantica	Atlas pistachio		> 0.8	>2.62		Abdelkrim et al., 2014
1794	Pistacia lentiscus	mastic		3.5	11.48		Armas et al., 2010
1795	Pistacia lentiscus	mastic		0.5	1.64		Silva & Rego, 2004
1796	Plantago albicans	downy plantain		0.71	2.33		Cannon, 1913
1797	Plantago lanceolata	ribwort plantain,		0.88	2.89		Nie et al., 2008
1798	Plantago lanceolata	ribwort plantain,		1.06	3.48		Nie et al., 2008

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1799	Plantago ovata		Plantaginaceae	0.1	0.33		Forseth et al. 1984
1800	Plantanus racemosa					1	
1801	Platanus occidentalis	American sycamore		2.7	8.86		Sprackling and Read,
1802	Platanus racemosa	California Sycamore					
1803	Platanus wrightii					1	
1804	Pleuraphis mutica	tobosa		1	3.28		Gibbens and Lenz, 2001;
1805	Pleuraphis rigida		Poaceae	0.36	1.18		Cody 1986
1806	Pleuraphis rigida		Poaceae	0.25	0.82		Nobel 1989
1807	Pleuraphis rigida		Poaceae				Nobel & Franco 1986
1808	Pleuraphis rigida		Poaceae				Nobel & Franco 1986
1809	Pluchea odorata					1	
1810	Pluchea sericea	arrowweed		1.31	4.30	1	Gary, 1963
1811	Pluchea sericea	Arrow-weed	Asteraceae	1.3	4.27	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
1812	Poa alpina	alpine meadow-		0.38	1.25		Nesterova, 1996
1813	Poa ligularis			0.7	2.30		Flombaum & Sala, 2012
1814	Poa pratensis	Kentucky bluegrass		0.42	1.38		Nesterova, 1996
1815	Poa pratensis	Kentucky bluegrass		0.07	0.23		Sherff, 1912
1816	Poa pratensis ssp.	Kentucky bluegrass		0.3	0.98		Castelli et al., 2000
1817	Poa pratensis ssp.	Kentucky bluegrass		1.28	4.20		Castelli et al., 2000
1818	Poa sandbergii	Sandberg's bluegrass		0.35	1.15		Link et al. 1990
1819	Poa sandbergii	Sandberg's Poa		0.33	1.08		Weaver, 1915
1820	Poa secunda	Sandberg bluegrass		0.46	1.51		Spence 1937
1821	Poa secunda	Sandberg bluegrass	Poaceae	0.35	1.15		Link et al. 1990
1822	Poa secunda	Sandberg bluegrass	Poaceae	0.2	0.66		Weaver 1917
1823	Poa secunda	Sandberg bluegrass	Poaceae	0.45	1.48		Spence 1937
1824	Podocarpaceae spp.	podocarp		0.5	1.64		Roering et al., 2002
1825	Podocarpus macrophyllus	yew plum pine,		2.4	7.87		Karizumi, 1979
1826	Podocarpus nagi	Asian bayberry		2.5	8.20		Karizumi, 1979
1827	Polemonium confertum	Rocky Mountain		0.55	1.80		Daubenmire, 1941
1828	Polygonum aviculare		Polygonaceae	0.13	0.43		Forseth et al. 1984
1829	Polygonum majus	Wiry Knotweed		0.17	0.56		Weaver, 1915
1830	Polygonum muhlenbergii	smartweed		0.1	0.33		Sherff, 1912
1831	Polygonum nitens			0.06	0.20		Nesterova, 1996
1832	Polygonum viviparum	alpine bistort		0.3	0.98		Daubenmire, 1941
1833	Polygonum viviparum	alpine bistort		0.015	0.05		Jonasson & Callaghan,
1834	Polygonum viviparum	alpine bistort		0.021	0.07		Jonasson & Callaghan,
1835	Populus acuminata					1	
1836	Populus angustifolia	narrowleaf cottonwood		0.75	2.46	1	Rood et al., 2011
1837	Populus angustifolia	narrowleaf cottonwood		1.15	3.77	1	Rood et al., 2011
1838	Populus angustifolia	narrowleaf cottonwood		1.4	4.59	1	Rood et al., 2011
1839	Populus balsamifera	balsam poplar		0.42	1.38	1	Pulling, 1918
1840	Populus balsamifera	balsam poplar		0.9	2.95	1	Rood et al., 2011
1841	Populus balsamifera	balsam poplar		1.25	4.10	1	Rood et al., 2011
1842	Populus deltoides	eastern cottonwood		1	3.28	1	Ceballos et al., 2012
1843	Populus deltoides	prairie cottonwood		1.35	4.43	1	Rood et al., 2011
1844	Populus deltoides	Plains cottonwood		0.8	2.62	1	Sprackling and Read,
1845	Populus deltoides	Plains cottonwood		3.7	12.14	1	Sprackling and Read,
1846	Populus deltoides	Plains cottonwood		3.8	12.47	1	Sprackling and Read,
1847	Populus euphratica	Euphrates Poplar or		4	13.12	1	Arndt, et al., 2004
1848	Populus euphratica	Euphrates Poplar		10.65	34.94	1	Gries et al., 2003
1849	Populus euphratica	Euphrates Poplar		15.25	50.03	1	Gries et al., 2003
1850	Populus euphratica	Euphrates Poplar		22.15	72.67	1	Gries et al., 2003
1851	Populus euphratica	Euphrates Poplar		8.25	27.07	1	Gries et al., 2003
1852	Populus euramericana	hybrid poplar		3	9.84	1	Mulia & Dupraz, 2006
1853	Populus fremontii	Fremont cottonwood		0.2	0.66	1	Shafroth et al., 2000
1854	Populus fremontii	Fremont cottonwood		0.65	2.13	1	Shafroth et al., 2000

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1855	Populus fremontii	Fremont cottonwood		1.4	4.59	1	Shafroth et al., 2000
1856	Populus fremontii	Fremont Cottonwood	Salicaceae	2.1	6.89	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
1857	Populus grandidentata	large-tooth or big-tooth		1.2	3.94	1	Duncan, 1935
1858	Populus nigra	Lombardy poplar		1.9	6.23	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1859	Populus pruinosa			4.0 - 6.0	13.12-19.69	1	Karimov & Molotkovski,
1860	Populus sargentii	Plains Cottonwood		2.6	8.53	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1861	Populus spp.					1	
1862	Populus texana					1	
1863	Populus tremuloides	Quaking aspen		2	6.56	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1864	Populus tremuloides	Quaking aspen		0.73	2.40	1	Berndt and Gibbons, 1958
1865	Populus tremuloides	Quaking aspen		1.28	4.20	1	Berndt and Gibbons, 1958
1866	Populus tremuloides	Quaking aspen		1.52	4.99	1	Berndt and Gibbons, 1958
1867	Populus tremuloides	trembling aspen		0.111	0.36	1	Mundell et al., 2007
1868	Populus tremuloides	trembling aspen		0.3	0.98	1	Rood et al., 2011
1869	Populus tremuloides	aspen		0.5	1.64	1	Strong & La Roi, 1983a,
1870	Populus tremuloides	aspen		0.5	1.64	1	Strong & La Roi, 1983a,
1871	Populus tremuloides	aspen		1.5	4.92	1	Strong & La Roi, 1983a,
1872	Populus tremuloides	aspen		1.5	4.92	1	Strong & La Roi, 1983a,
1873	Populus tremuloides	Quaking Aspen		2	6.56	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1874	Populus tremuloides	Quaking Aspen		2.3	7.55	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1875	Populus tremuloides	Quaking Aspen		2.9	9.51	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
1876	Populus tremuloides aurea					1	
1877	Populus trichocarpa	black cottonwood		0.65	2.13	1	Rood et al., 2011
1878	Populus trichocarpa	hybrid poplar		1.25	4.10	1	Zhang et al., 1999
1879	Populus trichocarpa	Black Cottonwood				1	
1880	Populus weslizeni					1	
1881	Porlieria angustifolia	Texas Guaiacum		1.2	3.94		Midwood et al., 1998
1882	Potentilla arguta			1.37	4.49		Weaver, 1919
1883	Potentilla aurea	Dwarf Yellow		0.55	1.80		Lichtenegger, 1996
1884	Potentilla blaschkeana	slender cinquefoil,		0.75	2.46		Spence 1937
1885	Potentilla blaschkeana			2.26	7.41		Weaver, 1915
1886	Potentilla diversifolia	mountain meadow		0.48	1.57		Daubenmire, 1941
1887	Potentilla fruticosa			0.3	0.98		Dorji et al., 2013
1888	Potentilla gracilis var.		Rosaceae	1.72	5.64		Weaver 1917
1889	Potentilla gracilis var.		Rosaceae	0.75	2.46		Spence 1937
1890	Potentilla pinnatisecta			0.35	1.15		Daubenmire, 1941
1891	Potentilla saundersiana			0.1	0.33		Dorji et al., 2013
1892	Prestoea montana	montane palm		1	3.28		Frangi & Lugo, 1985
1893	primary tropical rain			7	22.97		Sommer et al., 2000
1894	Primula vulgaris	primrose		0.21	0.69		Lichtenegger & Kutschera-
1895	Proserpinaca palustris	marsh mermaidwe		0.02	0.07		Sherff, 1912
1896	Prosopis caldenia	calden		0.8	2.62		Pelaez et al., 1994
1897	Prosopis chilensis	chilean mesquite		1	3.28		Jonsson, 1988
1898	Prosopis flexuosa	algarrobo		5	16.40		Jobbagy et al., 2011
1899	Prosopis flexuosa	algarrobo		5.3	17.39		Jobbagy et al., 2011
1900	Prosopis flexuosa	algarrobo		7.7	25.26		Jobbagy et al., 2011

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1901	Prosopis glandulosa	Honey Mesquite		2.6	8.53	1	Gibbens and Lenz, 2001;
1902	Prosopis glandulosa	Honey Mesquite		3	9.84	1	Gibbens and Lenz, 2001;
1903	Prosopis glandulosa	Honey Mesquite		5.2	17.06	1	Gibbens and Lenz, 2001;
1904	Prosopis glandulosa	Honey Mesquite		5.5	18.04	1	Gibbens and Lenz, 2001;
1905	Prosopis glandulosa	Honey Mesquite		2.1	6.89	1	Midwood et al., 1998
1906	Prosopis glandulosa	Honey Mesquite		2.4	7.87	1	Midwood et al., 1998
1907	Prosopis glandulosa	Honey Mesquite		2.25	7.38	1	Moore et al., 2010
1908	Prosopis glandulosa	Honey Mesquite		4.0 - 6.0	13.12 - 19.69	1	Nilsen et al., 1983
1909	Prosopis glandulosa	Honey Mesquite	Fabaceae	15	49.21	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
1910	Prosopis glandulosa	Honey Mesquite	Fabaceae	20	65.62	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
1911	Prosopis glandulosa var.	Western Honey Mesquite	Mimosaceae	6	19.69		Sharifi et al. 1982
1912	Prosopis glandulosa var. torreyana	Western Honey Mesquite		6	19.69		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
1913	Prosopis juliflora	mesquite		53	173.88	1	Phillips, 1963
1914	Prosopis laevigata	Smooth Mesquite					
1915	Prosopis Larrea	mesquite, creosote		2	6.56		Jackson et al., 2002
1916	Prosopis Larrea	mesquite, creosote		2.5	8.20		Jackson et al., 2002
1917	Prosopis Larrea	mesquite, creosote		2.8	9.19		Jackson et al., 2002
1918	Prosopis Larrea	mesquite, creosote		4	13.12		Jackson et al., 2002
1919	Prosopis Larrea	mesquite, creosote		5.4	17.72		Jackson et al., 2002
1920	Prosopis Larrea	mesquite, creosote		5.8	19.03		Jackson et al., 2002
1921	Prosopis pubescens					1	
1922	Prosopis tamarugo	Tamarugo		> 3.5	> 11.48		Mooney et al., 1980
1923	Prosopis velutina	velvet mesquite		5	16.40	1	Brunel, 2009
1924	Prosopis velutina	velvet mesquite		5.0-8.0	16.40-26.25	1	Cannon, 1911
1925	Protea neriijolia			>3	> 9.84		Higgins et al., 1987
1926	Protea repens			>3	> 9.84		Higgins et al., 1987
1927	Prunus americana	American (wild) plum		1.5	4.92		Sprackling and Read,
1928	Prunus armeniaca	Approcot		2.3	7.55		Sprackling and Read,
1929	Prunus armerdaca	Seedling apricot		2.44	8.01		Bunger & Thomson,
1930	Prunus communis	peach		4.7	15.42		Howard, 1925
1931	Prunus emarginata	Bitter Cherry					
1932	Prunus fasciculata	Desert Almond					
1933	Prunus mahaleb	mahaleb cherry, St		13	42.65		Nardini et al., 2016
1934	Prunus persica	plum		4.9	16.08		Howard, 1925
1935	Prunus pumila L.	sand cherry		> 0.3(rhizome)	> 0.98		Whittle et al., 1998
1936	Prunus sarotina	black cherry		1.2	3.94		Sprackling and Read,
1937	Prunus virginiana	Choke cherry		1.5	4.92		Sprackling and Read,
1938	Prunus virginiana	Choke Cherry		1.6	5.25		Sprackling, John A. and Read, Ralph A., "Tree Root Systems In Eastern Nebraska" (1979). Conservation and Survey Division. 34. http://digitalcommons.unl.edu/conservationsurvey/34
1939	Pseudolachno stylis	Duiker- berry, Kudu-		0.9	2.95		Timberlake & Calvert, 1993
1940	Pseudolachno stylis	Duiker- berry, Kudu-		1.2	3.94		Timberlake & Calvert, 1993
1941	Pseudolachno stylis	Duiker- berry, Kudu-		1.4	4.59		Timberlake & Calvert, 1993
1942	Pseudolachno stylis	Duiker- berry, Kudu-		1.6	5.25		Timberlake & Calvert, 1993
1943	Pseudolachno stylis	Duiker- berry, Kudu-		1.9	6.23		Timberlake & Calvert, 1993
1944	Pseudolachno stylis	Duiker- berry, Kudu-		2	6.56		Timberlake & Calvert, 1993
1945	Pseudoroegneria spicata		Poaceae	1.36	4.46		Harris 1967
1946	Pseudoroegneria spicata		Poaceae	1.4	4.59		Harris 1967
1947	Pseudoroegneria spicata		Poaceae	1.48	4.86		Weaver 1917
1948	Pseudoroegneria spicata		Poaceae	1.05	3.44		Spence 1937
1949	Pseudotsuga menziesii	Douglas-fir		0.82	2.69		Berndt and Gibbons, 1958
1950	Pseudotsuga menziesii	Douglas-fir		1.46	4.79		Berndt and Gibbons, 1958
1951	Pseudotsuga menziesii	Douglas-fir		1.52	4.99		Berndt and Gibbons, 1958
1952	Pseudotsuga menziesii	Douglas-fir		0.6	1.97		Curt et al., 2001

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1953	Pseudotsuga menziesii	Douglas-fir		0.6	1.97		Curt et al., 2001
1954	Pseudotsuga menziesii	Douglas-fir		0.8	2.62		Curt et al., 2001
1955	Pseudotsuga menziesii	Douglas-fir		0.9	2.95		Curt et al., 2001
1956	Pseudotsuga menziesii	Douglas-fir		0.9	2.95		Curt et al., 2001
1957	Pseudotsuga menziesii	Douglas-fir		1.2	3.94		Curt et al., 2001
1958	Pseudotsuga menziesii	Douglas-fir		1.3	4.27		Curt et al., 2001
1959	Pseudotsuga menziesii	Douglas-fir		0.37	1.21		Eis, 1974
1960	Pseudotsuga menziesii	Douglas-fir		1.32	4.33		Eis, 1974
1961	Pseudotsuga menziesii	Douglas-fir		0.8	2.62		Kuiper, 1992
1962	Pseudotsuga menziesii	Douglas-fir		1.51	4.95		Mauer and Palatova,
1963	Pseudotsuga menziesii	Douglas-fir		2.4	7.87		Kourik, R. 2015. Understanding Roots…discover how to make your garden flourish. Metamorphic Press, Occidental, CA.
1964	Pseudotsuga taxifolia	Douglas fir		1.4	4.59		Reynolds, 1970
1965	Psidium gurava	Guava		4.4	14.44		Howard, 1925
1966	Psilostrophe tagetina	paperflower		1.76	5.77		Gibbens and Lenz, 2001;
1967	Psoralea argophylla	Silverleaf indian		1.83	6.00		Weaver, 1919
1968	Psoralea lanceolata	lemon scurfpea		1.22	4.00		Coupland & Johnson, 1965
1969	Psoralea lanceolata	lemon scurfpea		3.05	10.01		Weaver, 1919
1970	Psoralea tenuiflora	Slimflower scurfpea		1.83	6.00		Weaver, 1919
1971	Psoralea tenuiflora	Slimflower scurfpea		3.71	12.17		Weaver, 1919
1972	Psorothamnus spinosus	Smoke Tree					
1973	Psychotria chagrensis			0.51	1.67		Wright et al., 1992
1974	Psychotria furcata			0.29	0.95		Wright et al., 1992
1975	Psychotria horizontalis			0.33	1.08		Wright et al., 1992
1976	Psychotria limonensis			0.92	3.02		Wright et al., 1992
1977	Psychotria marginata			0.38	1.25		Wright et al., 1992
1978	Pteridium aquilinum	bracken fern, eagle		0.2	0.66		Bakker et al., 2006
1979	Pteridium aquilinum	bracken fern, eagle		1.2	3.94		Bakker et al., 2006
1980	Pteridium aquilinum	common bracken,		0.7	2.30		Silva & Rego, 2003
1981	Pteridium aquilinum L.	bracken fern, eagle		> 0.17(rhizome)	> 0.56		Whittle et al., 1998
1982	Pterocarpus angolensis	Wild teak		1.4	4.59		Timberlake & Calvert, 1993
1983	Pterocarpus angolensis	Wild teak		1.8	5.91		Timberlake & Calvert, 1993
1984	Pterocarpus lucens	barwood		4.1	13.45		Timberlake & Calvert, 1993
1985	Pterocarpus lucens	barwood		5.3	17.39		Timberlake & Calvert, 1993
1986	Pteryxia terebinthina		Apiaceae	1.24	4.07		Klepper et al. 1985
1987	Pteryxia terebinthina		Apiaceae	1.41	4.63		Klepper et al. 1985
1988	Pteryxia terebinthina		Apiaceae	1.55	5.09		Klepper et al. 1985
1989	Pteryxia terebinthina		Apiaceae	1.6	5.25		Klepper et al. 1985
1990	Pulchea sericea					1	
1991	Pulsatilla pratensis	small pasque		0.8	2.62		Lichtenegger & Kutschera-
1992	Purshia tridentata	antelope bitterbrush		3	9.84		Klepper et al., 1985
1993	Purshia tridentata	antelope bitterbrush	Rosaceae	2.83	9.28		Klepper et al. 1985
1994	Purshia tridentata	antelope bitterbrush	Rosaceae	3	9.84		Klepper et al. 1985
1995	Purshia tridentata	antelope bitterbrush	Rosaceae	3	9.84		Klepper et al. 1985
1996	Purshia tridentata	antelope bitterbrush	Rosaceae	3	9.84		Klepper et al. 1985
1997	Pycnanthermum	mountain mint		1.17	3.84		Sperry, 1935
1998	Q. alba L. Q. velutina	white oak, black oak,		1.42	4.66		Coile, 1937
1999	Q. kellogii Q. douglasii	black, blue oak		11.31	37.11		Lewis and Burgy, 1964
2000	Quercu, Acer, Pinus species	oak, maple, pine		1	3.28		Gaines et al., 2015
2001	Quercu, Acer, Pinus species	oak, maple, pine		1	3.28		Gaines et al., 2015
2002	Quercu, Acer, Pinus species	oak, maple, pine		1	3.28		Gaines et al., 2015
2003	Quercus agrifolia	coast live oak		>4	>13.12	1	Bornyasz et al., 2005
2004	Quercus agrifolia	Coast Live Oak	Fagaceae	10.7	35.10	1	Cannon 1914
2005	Quercus agrifolia	Coast Live Oak	Fagaceae	7.3	23.95	1	Kummerow 1981
2006	Quercus agrifolia	Coast Live Oak	Fagaceae	9.1	29.86	1	Thomas 1980
2007	Quercus agrifolia	Coast Live Oak	Fagaceae	10.7	35.10	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.

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2008	Quercus agrifolia	Coast Live Oak	Fagaceae	7.3	23.95	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2009	Quercus agrifolia	Coast Live Oak	Fagaceae	9.1	29.86	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2010	Quercus agrifolia	Coast Live Oak	Fagaceae	10.7	35.10	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2011	Quercus alba	white oak		3	9.84		Stringer et al., 1989
2012	Quercus alba	white oak		1.5	4.92		Teskey & Hinckley,
2013	Quercus alba L.. Q. prinus	white oak, chestnut		> 0.9	>2.95		Joslin et al., 2006
2014	Quercus alba L.. Q. prinus	white oak, chestnut		> 0.9	>2.95		Joslin et al., 2006
2015	Quercus borealis	northern red oak		1.17	3.84		Scully, 1942
2016	Quercus borealis	northern red oak,		1.24	4.07		Scully, 1942
2017	Quercus cerris	Turkey oak, Austrian oak		0.7	2.30		Claus & George, 2005
2018	Quercus chrysolepis	Canyon live oak		7.32	24.02	1	Hellmers et al., 1955
2019	Quercus chrysolepis	Canyon Live Oak	Fagaceae	7.32	24.02	1	Hellmers et al. 1955
2020	Quercus chrysolepis	Canyon Live Oak	Fagaceae	7.3	23.95	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
2021	Quercus douglasii	blue oak		0.53	1.74		Raz-Yaseef et al., 2013
2022	Quercus douglasii	Blue Oak	Fagaceae	3.66	12.01		Cannon 1914
2023	Quercus douglasii	Blue Oak	Fagaceae	24.38	79.99		Lewis & Burgy 1964
2024	Quercus douglasii	Blue Oak	Fagaceae	1.5	4.92		Millikin & Bledsoe 1999
2025	Quercus douglasii	Blue Oak	Fagaceae	1.5	4.92		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2026	Quercus douglasii	Blue Oak	Fagaceae	3.66	12.01		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2027	Quercus douglasii	Blue Oak	Fagaceae	24.38	79.99		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2028	Quercus dumosa	Californinia scrub oak		> 2.44	> 8.01	1	Hellmers et al., 1955
2029	Quercus dumosa	Californinia scrub oak		8.53	27.99	1	Hellmers et al., 1955
2030	Quercus dumosa	Californinia scrub oak	Fagaceae	8.53	27.99	1	Hellmers et al. 1955
2031	Quercus fusiformis	Texas live oak, gum		20	65.62		Bleby et al., 2010
2032	Quercus fusiformis	live oak		11	36.09		Jackson et al., 1999
2033	Quercus fusiformis	live oak		14	45.93		Jackson et al., 1999
2034	Quercus fusiformis	live oak		18	59.06		Jackson et al., 1999
2035	Quercus fusiformis	live oak		22	72.18		Jackson et al., 1999
2036	Quercus fusiformis	live oak		5	16.40		Jackson et al., 1999
2037	Quercus fusiformis	live oak		6	19.69		Jackson et al., 1999
2038	Quercus fusiformis	live oak		8	26.25		Jackson et al., 1999
2039	Quercus fusiformis	live oak		9	29.53		Jackson et al., 1999
2040	Quercus ilex			3.7	12.14		Nijland et al., 2010
2041	Quercus ilex			7	22.97		Nijland et al., 2010
2042	Quercus ilex L.	evergreen oak, holly		> 0.6	> 1.97		López et al. 2001
2043	Quercus ilex Quercus			11	36.09		Nijland et al., 2010
2044	Quercus ilex Quercus			12	39.37		Nijland et al., 2010
2045	Quercus kelloggii		Fagaceae	12.83	42.09		Lewis & Burgy 1964
2046	Quercus lobata	Valley Oak	Fagaceae	24.38	80.00	1	Lewis & Burgy 1964
2047	Quercus lobata	Valley Oak	Fagaceae	24.38	80.00	1	Howard, J. 1992. Quercus lobata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Available: https://www.fs.fed.us/database/feis/plants/tree/quelob/all.html
2048	Quercus macrocarpa	bur oak		4	13.12		Sprackling and Read,

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2049	Quercus macrocarpa	bur oak		4.9	16.08		Sprackling and Read,
2050	Quercus macrocarpa	bur oak		4.57	14.99		Weaver & Cramer, 1932
2051	Quercus myrtifolia	myrtle oak / sand live		> 1.5	>4.92		Ellsworth & Sternberg,
2052	Quercus nigra	water oak, sweetgum,		> 1.0	>3.28		Farrish, 1991
2053	Quercus petraea	sessile oak		2	6.56		Breda et al., 1995
2054	Quercus petraea	sessile oak, Cornish oak,		0.6	1.97		Büttner & Leuschner,
2055	Quercus petraea	sessile oak, Cornish oak,		0.6	1.97		Thomas, 2000
2056	Quercus petraea	sessile oak, Cornish oak,		1	3.28		Thomas, 2000
2057	Quercus petraea	sessile oak, Cornish oak,		1	3.28		Thomas, 2000
2058	Quercus prinus Q.	chestnut oak		2	6.56		Sain Ju & Good, 1993
2059	Quercus pyrenaica	Pyrenean oak		0.6	1.97		Silva & Rego, 2004
2060	Quercus robur	pedunculate oak		1.6	5.25		Breda et al., 1995
2061	Quercus robur	English oak		0.4	1.31		Oosterbaan & Nabuurs,
2062	Quercus robur	English oak		0.5	1.64		Oosterbaan & Nabuurs,
2063	Quercus robur	English oak		0.6	1.97		Oosterbaan & Nabuurs,
2064	Quercus robur	English oak		0.8	2.62		Oosterbaan & Nabuurs,
2065	Quercus robur	English oak		0.9	2.95		Oosterbaan & Nabuurs,
2066	Quercus robur	English oak		1.05	3.44		Thomas, 2000
2067	Quercus rotundifolia	sweet acorn oak		13	42.65		David et al., 2004
2068	Quercus sinuata	Durand oak		7	22.97		Jackson et al., 1999
2069	Quercus stellata	post oak, blackjack		0.91	2.99		Coile, 1937
2070	Quercus suber L.	cork oak		6.5	21.33		David et al., 2013
2071	Quercus suber L.	cork oak		2	6.56		Mendes et al., 2016
2072	Quercus suber L.	cork oak		2.5	8.20		Mendes et al., 2016
2073	Quercus wislizenii		Fagaceae	20.72	67.98		Lewis & Burgy 1964
2074	Quercus wislizenii Q.	live, blue oak		14.94	49.02		Lewis and Burgy, 1964
2075	Quercus wislizenii Q.	live, blue oak		15.45	50.69		Lewis and Burgy, 1964
2076	Quercus wislizenii Q.	live, blue oak		20.39	66.90		Lewis and Burgy, 1964
2077	Quercus wislizenii Q.	live, blue, valley oak		5.88	19.29		Lewis and Burgy, 1964
2078	Radermachera sinica			0.62	2.03		Nie et al., 2014
2079	Radermachera sinica			0.68	2.23		Nie et al., 2014
2080	Radermachera sinica			1.17	3.84		Nie et al., 2014
2081	Ranunculus delphinifolium	Monkshood		0.03	0.10		Sherff, 1912
2082	Ratibida columnaris	upright prairie		0.64	2.10		Weaver, 1919
2083	Redfieldia flexuosa	blow Out grass		1.42	4.66		Weaver, 1919
2084	Reseda muricata	Showla		0.2	0.66		Schwarz, 1938
2085	Retama Retam			1.2	3.94		Schwarz, 1938
2086	Retama sphaerocarpa	broom bush		2	6.56		Archer et al., 2002
2087	Retama sphaerocarpa	yellow broom		28	91.86		Haase et al., 1996
2088	Rheum maximoviczii			0.62	2.03		Karimov & Molotkovski,
2089	Rhigozum trichotomum	three thorns,		1.08	3.54		Bhattachan et al., 2012
2090	Rhodiola coccinea			0.3	0.98		Nesterova, 1996
2091	Rhododendron occidentale			0.6	1.97		Judith Skinner, horticulturist. 2017 TNC Crowdsourcing Campaign Survey Response.
2092	Rhus copallina L.	shining sumac,		1.42	4.66		Duncan, 1935
2093	Rhus glabra	Smooth sumac		2.1	6.89		Sprackling and Read,
2094	Rhus glabra	smooth sumac		2.29	7.51		Weaver, 1919
2095	Rhus integrifolia					1	
2096	Rhus laurina	Laurel sumac	Anacardiaceae	5.2	17.06		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2097	Rhus laurina	Laurel sumac	Anacardiaceae	5.4	17.72		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2098	Rhus laurina	Laurel sumac	Anacardiaceae	13.2	43.31		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2099	Rhus ovata					1	
2100	Rhus trilobata	Skunkbush					

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2101	Ribes quercetorum	Oakwoods Gooseberry					
2102	Ribes speciosum					1	
2103	Ricinodendron rautanenii	mongongo tree		1.4	4.59		Timberlake & Calvert, 1993
2104	Ricinodendron rautanenii	mongongo tree		1.5	4.92		Timberlake & Calvert, 1993
2105	Ricinodendron rautanenii	mongongo tree		1.7	5.58		Timberlake & Calvert, 1993
2106	Robinia pseudoacacia	Black locus		8.53	27.99		Bunger & Thomson,
2107	Robinia pseudoacacia	black locust		2.4	7.87		Sprackling and Read,
2108	Robinia pseudoacacia	black locust		1	3.28		Zhang et al., 2014
2109	Rosa arkansana	Prairie Rose		6.45	21.16	1	Weaver, 1919
2110	Rosa blanda	rose bush		0.98	3.22	1	Cheyney, 1929, 1932
2111	Rosa californica	California Rose				1	
2112	Rosa humilis	Carolin A Rose, Sand		0.8	2.62	1	Sperry, 1935
2113	Rosa nutkana	Rosa nutkana /		2.44	8.01	1	Weaver, 1915
2114	Rosa setigera Michaux	Climbing prairie rose,		0.64	2.10	1	Duncan, 1935
2115	Rosa setigera Michaux	Climbing prairie rose,		1.57	5.15	1	Duncan, 1935
2116	Rosa spinosissima	burnet rose		2	6.56	1	Nesterova, 1996
2117	Rosa spp.					1	
2118	Rosa woodsii	Woods' Rose				1	
2119	Rosmarinus officinalis	rosemary and thyme		0.35	1.15		Badia et al., 2011
2120	Rubus allegheniensi	Allegheny blackberry,		1.03	3.38		Duncan, 1935
2121	Rubus allegheniensi	Allegheny blackberry,		> 0.4(rhizome)	> 1.31		Whittle et al., 1998
2122	Rubus armeniacus	Himalayan blackberry					
2123	Rubus deliciosus	boulder raspberry,		0.91	2.99		Weaver, 1919
2124	Rubus lasiococcus	roughfruit berry		0.44 (0.27-	1.44 (0.89-		Antos, 1988
2125	Rubus parviflorus						
2126	Rubus pedatus	strawberryl eaf		0.17 (0.11-	0.56 (0.36-		Antos, 1988
2127	Rubus spectabilis	Salmonberry					
2128	Rubus ulmifolius	elmleaf blackberry		1.1	3.61		Silva & Rego, 2003
2129	Rubus ursinus						
2130	Rueillia ciliosa	wild petunias		1.1	3.61		Sperry, 1935
2131	Rueillia ciliosa	wild petunias		1.49	4.89		Sperry, 1935
2132	Ruschia robusta			0.28	0.92		Carrick, 2003
2133	Ruschia robusta	Swart T'nouroebos		1	3.28		February et al., 2011
2134	Ruschia robusta			0.55	1.80		Shiponeni et al., 2011
2135	Ruschia sp.			0.05	0.16		Esler & Rundel, 1999
2136	Rydbergia grandiflora	Old Man of the		0.2	0.66		Daubenmire, 1941
2137	Sabina chinensis	savin juniper,		1.8	5.91		Karizumi, 1979
2138	Sabina procumbens	pu di bai (paving		0.6	1.97		Karizumi, 1979
2139	Sabina sargentii	yan bai (yan juniper)		0.7	2.30		Karizumi, 1979
2140	Sabina virginiana	red cedar, eastern		1.2	3.94		Karizumi, 1979
2141	Sabina vulgaris	Savin Juniper or		0.86	2.82		He & Zhang, 2003
2142	Sabina vulgaris	Savin Juniper or		1.02	3.35		He & Zhang, 2003
2143	Sabina vulgaris	Savin Juniper or		1.04	3.41		He & Zhang, 2003
2144	Saccharum spontaneum	wild sugarcane,		1.0-1.5	3.28-4.92		Karimov & Molotkovski,
2145	Sagittaria latifolia	broadleaf arrowhead,		0.15	0.49		Sherff, 1912
2146	Salazaria mexicana		Lamiaceae	0.9	2.95		Cody 1986
2147	Salazaria mexicana		Lamiaceae	0.9	2.95		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2148	Salicornia depressa						
2149	Salicornia europaea					1	
2150	Salicornia rubra					1	
2151	Salicornia utahensis					1	
2152	Salicornia virginica	Pickleweed					
2153	Salix amygdaloides	Peachleaf willow		0.8	2.62	1	Sprackling and Read,
2154	Salix amygdaloides	Peachleaf willow		4.3	14.11	1	Sprackling and Read,
2155	Salix babylonica	Weeping willow		2.2	7.22	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.

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2156	Salix bebbiana					1	
2157	Salix breweri	Brewer's Willow				1	
2158	Salix eastwoodiae	Mountain Willow				1	
2159	Salix exigua	Narrowleaf Willow				1	
2160	Salix geyeriana					1	
2161	Salix gooddingii	Goodding's Willow	Salicaceae	2.1	6.89	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
2162	Salix hookeriana					1	
2163	Salix jepsonii					1	
2164	Salix laevigata	Red Willow/Polished Willow				1	
2165	Salix lasiolepis	Arroyo Willow				1	
2166	Salix lemmonii	Lemmon's Willow				1	
2167	Salix lucida	Shining Willow				1	
2168	Salix lutea					1	
2169	Salix nigra	black willow		2.4	7.87	1	Sprackling and Read,
2170	Salix nigra	Black Willow				1	
2171	Salix nivalis					1	
2172	Salix orestera	Sierra willow				1	
2173	Salix petrophila					1	
2174	Salix planifolia					1	
2175	Salix reticulata	net-leaved willow,		0.018	0.06	1	Jonasson & Callaghan,
2176	Salix setchelliana	Setchell's willow		0.1	0.33	1	Douglas, 1989
2177	Salix setchelliana	Setchell's willow		0.1	0.33	1	Douglas, 1989
2178	Salix sitchensis					1	
2179	Salix spp.	willow		0.8	2.62	1	Pulling, 1918
2180	Salix spp.	Willow				1	
2181	Salix tristis	narrow- leaved		2.24	7.35	1	Stoeckeler, 1938
2182	Salsola kali	Russian thistle		2.09	6.86	1	Klepper et al., 1985
2183	Salsola pestifera	prickly Russian		0.67	2.20		Dittmer, 1959
2184	Salsola rigida			0.35	1.15		Schwarz, 1938
2185	Salsola tragus		Chenopodiaceae	1.18	3.87		Klepper et al. 1985
2186	Salsola tragus		Chenopodiaceae	1.45	4.76		Klepper et al. 1985
2187	Salsola tragus		Chenopodiaceae	1.5	4.92		Klepper et al. 1985
2188	Salsola tragus		Chenopodiaceae	1.72	5.64		Klepper et al. 1985
2189	Salsola tragus		Chenopodiaceae	1.83	6.00		Klepper et al. 1985
2190	Salsola tragus		Chenopodiaceae	1.9	6.23		Klepper et al. 1985
2191	Salsola tragus		Chenopodiaceae	2.05	6.73		Klepper et al. 1985
2192	Salsola tragus		Chenopodiaceae	2.09	6.86		Klepper et al. 1985
2193	Salvia apiana	White sage		> 1.52	> 4.99		Hellmers et al., 1955
2194	Salvia apiana	White sage	Lamiaceae	1.52	4.99		Hellmers et al. 1955
2195	Salvia dorrii		Lamiaceae	1.08	3.54		Cody 1986
2196	Salvia dorrii		Lamiaceae	1.08	3.54		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2197	Salvia mellifera	Black sage		> 0.61	> 2.00		Hellmers et al., 1955
2198	Salvia mellifera	Black sage	Lamiaceae	0.61	2.00		Hellmers et al. 1955
2199	Sambucus mexicana	Blue elderberry		3	9.84	1	Kourik, R. 2015. Understanding Roots…discover how to make your garden flourish. Metamorphic Press, Occidental, CA.
2200	Sambucus nigra	Common Elderberry				1	

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2201	Sambucus spp.					1	
2202	Sansevieria ehrenbergii			0.9	2.95		Glover, 1950
2203	Sapium haematosper			1	3.28		Salis et al., 2014
2204	Sarcobatus vermiculatus	greasewood , seepwood,		4	13.12	1	Donovan et al., 1996
2205	Sarcobatus vermiculatus		Chenopodiaceae	3.6	11.81	1	Groeneveld 1989
2206	Sarcobatus vermiculatus	Greasewood	Chenopodiaceae	3.6	11.81	1	Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.
2207	Sarcocornia pacifica						
2208	Sarcocornia pillansii	samphires, or		1.2	3.94		Bornman et al., 2004
2209	Sarcocornia pillansii	samphires, or		1.2	3.94		Bornman et al., 2004
2210	Saroobatm vermdoulatus	big greasewood		1.09	3.58		Meinzer, 1927
2211	Sassafras officinale	Sassafras, White		1.35	4.43		Duncan, 1935
2212	Satureja gilliesii			0.2	0.66		Hoffmann, 1978
2213	Saxifragra romboidea	diamondleaf saxifrage		0.1	0.33		Daubenmire, 1941
2214	Schaefferia cuneifolia	Desert Yaupon,		1.2	3.94		Midwood et al., 1998
2215	Schaefferia cuneifolia	Desert Yaupon,		1.4	4.59		Midwood et al., 1998
2216	Schinus johnstonii			>2.5	>8.20		Bucci et al., 2009
2217	Schinus molle	Peruvian Peppertree					
2218	Schizachyrium scoparium	little bluestem		0.8	2.62		Jackson et al., 2002
2219	Schoenoplectus acutus	Hardstem Bulrush	Cyperaceae	0.6	1.97		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
2220	Schoenoplectus acutus var. occidentalis	Tule					
2221	Schoenoplectus americanus	Three-square Bulrush	Cyperaceae	0.65	2.13	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
2222	Schoenoplectus californicus	California Bulrush					
2223	Schoenoplectus spp.	Bulrush					
2224	Sciadopitys verticillata	Japanese umbrella-		1.8	5.91		Karizumi, 1979
2225	Scirpus giganteus	club rush		0.3	0.98		Ceballos et al., 2012
2226	Scirpus spp.	Club-rush				1	
2227	Scleropogon brevifolius	burrograss		0.96	3.15		Gibbens and Lenz, 2001;
2228	Scleropogon brevifolius	burrograss		1.1	3.61		Gibbens and Lenz, 2001;
2229	Scorzonera villosa			1.15	3.77		Lichtenegger & Kutschera-
2230	secondary evergreen			2	6.56		Yuen et al., 2013
2231	secondary tropical			7	22.97		Sommer et al., 2000
2232	Securidaca longipedunculata	violet tree		30	98.43		Obakeng, 2007
2233	Securidaca longipedunculata	violet tree		40	131.23		Obakeng, 2007
2234	Securidaca longipedunculata	violet tree		60	196.85		Obakeng, 2007
2235	Sedum stenopetalum	wormleaf stonecrop		0.1	0.33		Daubenmire, 1941
2236	Selaginella densa	lesser spikemoss,		0.2-0.5	0.66-1.64		Coupland & Johnson, 1965
2237	Selaginella selaginoides	lesser clubmoss,		0.01	0.03		Karrfalt, 1981
2238	semi-closed canopy forest			5.75	18.86		Oliveira et al., 2005
2239	Sencecio filagionoides			<1	<3.28		Bucci et al., 2009
2240	Senecio aureus	golden ragwort		0.94	3.08		Weaver, 1919
2241	Senecio filaginoides	Yuyo moro, rosemary,		1.7	5.58		Flombaum & Sala, 2012
2242	Senecio sylvaticus		Asteraceae	0.26	0.85		Antos & Halpern 1997
2243	Senna armata		Fabaceae	1.75	5.74		Cody 1986
2244	Senna spectabilis	Spectacular cassia,		> 3.0	> 9.84		Livesley et al., 2000
2245	Sequoia gigantea	giant sequoia,		1.83	6.00	1	MacDougal, 1937
2246	Sequoia sempervirens	coastal redwood,		2.6	8.53		Karizumi, 1979
2247	Sequoia sempervirens	Redwood	Taxodiaceae	5	16.40		Zinke 1977
2248	Sequoia sempervirens	Redwood	Taxodiaceae	5	16.40		Schenk, H. J. and Jackson, R. B. 2002. The Global Biogeography of Roots. Ecological Monographs, 72: 311–328. doi:10.1890/0012-9615(2002)072[0311:TGBOR]2.0.CO;2.

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2249	Sequoiadendron giganteum	Giant Sequoia		0.105	0.34		Hartesveldt, R.J. H.T. Harvey, H.S. Shellhammer, R.E. Stecker (1975) The Giant Sequoia of the Sierra Nevada. US Department of the Interior (National Park Service), Washington, D.C. Available at: http://npshistory.com/series/science/hartesveldt/index.htm
2250	Serenoa repens	saw palmetto		2.05	6.73		van Rees & Comerford,
2251	Sesbania punicea	Purple Rattle-bush					
2252	Sesuvium portulocostrum					1	
2253	Sesuvium verrucosum					1	
2254	Shepherdia spp.					1	
2255	Sidalcea oregana	Oregon checkerbloo		1.24	4.07		Weaver, 1915
2256	Sidalcea oregana	Oregon checkerbloo	Malvaceae	1.2	3.94		Weaver 1917
2257	Sieversia ciliata	Prairie- Smoke		1.68	5.51		Weaver, 1915
2258	Sieversia turbinata			0.37	1.21		Daubenmire, 1941
2259	Silene acaulis linn	moss campion,		0.2	0.66		Daubenmire, 1941
2260	Silene otites	Spanish Catchfly		0.5	1.64		Lichtenegger & Kutschera-
2261	Silphium laciniatum	compass plant		1.79	5.87		Sperry, 1935
2262	Silphium integrifolium	whole-leaf rosinweed,		0.82	2.69		Sperry, 1935
2263	Silphium integrifolium	whole-leaf rosinweed,		1.71	5.61		Sperry, 1935
2264	Silphium laciniatum	compass plant		4.17	13.68		Weaver, 1919
2265	Silphium terebinthinaceum	Prairie dock		1.4	4.59		Sperry, 1935
2266	Simarouba versicolor			1	3.28		Salis et al., 2014
2267	Sindora coriacea			4	13.12		Niiyama et al., 2010
2268	Sisymbrium altissimum		Brasssicaceae	0.97	3.18		Link et al. 1995
2269	Sisyrinchium albidum	blue-eyed grass		0.17	0.56		Sperry, 1935
2270	Sium ciculaefolium	water parsnip		0.07	0.23		Sherff, 1912
2271	Smilacina stellata	starry false lily of the		0.26 (0.18-	0.85 (0.59-		Antos, 1988
2272	Smilacina stellata	star- flowered (or		0.56	1.84		Weaver, 1919
2273	Smilacina stellata	star- flowered (or		1.12	3.67		Weaver, 1919
2274	Smilax rotundifolia L.	common greenbrier		1.5	4.92		Duncan, 1935
2275	Solanum elaeagnifolium	Silverleaf nightshade		1.14	3.74		Dittmer, 1959
2276	Solanum elaeagnifolium	silverleaf nightshade		2.4	7.87		Gibbens and Lenz, 2001;
2277	Solanum elaeagnifolium	silver-leaf nightshade,		1.1	3.61		Gibbens and Lenz, 2001;
2278	Solidago canadensis	Canada goldenrod		3.35	10.99		Weaver, 1919
2279	Solidago missouriensis	Missouri goldenrod,		1.32	4.33		Coupland & Johnson, 1965
2280	Solidago oreophila	Mountain Goldenrod		0.97	3.18		Weaver, 1919
2281	Solidago rigida	prairie golden-rod		1.02	3.35		Sperry, 1935
2282	Solidago rigida	prairie golden-rod		1.4	4.59		Sperry, 1935
2283	Solidago rigida	stiff goldenrod		1.52	4.99		Weaver, 1919
2284	Solidago virgaurea	European goldenrod,		0.046	0.15		Jonasson & Callaghan,
2285	Sparganium eurycarpum	giant bur- reed		0.12	0.39		Sherff, 1912
2286	Spartin A michauxiana	slough grass		1.59	5.22		Sperry, 1935
2287	Spartina gracilis	Alkali Cordgrass					
2288	Spartina pectinata			4	13.12		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
2289	Sphaeralcea coccine	scarlet globemallo		1.8	5.91		Coupland & Johnson, 1965
2290	Sphaeralcea hastulata	wrinkled globemallo		1.6	5.25		Gibbens and Lenz, 2001;
2291	Sphaeralcea hastulata	wrinkled globemallo		3.4	11.15		Gibbens and Lenz, 2001;
2292	Sphaeralcea parviflora A.	small-leaf globemallo		0.8	2.62		Dittmer, 1959
2293	Spiraea hypericifolia	Iberian spirea		2	6.56		Nesterova, 1996
2294	Spondias purpurea			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
2295	Sporobolus airoides	Alkali Sacaton				1	
2296	Sporobolus brevifolius	western drop-seed		0.49	1.61		Sperry, 1935
2297	Sporobolus contractus	spike dropseed		1.3	4.27		Gibbens and Lenz, 2001;
2298	Sporobolus contractus	spike dropseed	Poaceae	1.22	4.00		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
2299	Sporobolus cryptandrus	sand dropseed		0.78	2.56		Coupland & Johnson, 1965
2300	Sporobolus cryptandrus	sand dropseed		0.56	1.84		Weaver, 1919

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2301	Sporobolus cryptandrus	sand dropseed	Poaceae	1.5	4.92		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
2302	Sporobolus flexuosus	mesa dropseed,		1.05	3.44		Gibbens and Lenz, 2001;
2303	Sporobolus heterolepsis			1.5	4.92		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
2304	Sporobolus longifolius			1.02	3.35		Weaver, 1919
2305	Sporobolus nealleyi	gypgrass		0.19	0.62		Gibbens and Lenz, 2001;
2306	Sporobolus wrightii					1	
2307	Stachys sp.			0.2	0.66		Hoffmann, 1978
2308	Steganotaeni a araliacea	Carrot-tree		1.6	5.25		Timberlake & Calvert, 1993
2309	Stipa comata	Needle and thread grass		0.63	2.07		Coupland & Johnson, 1965
2310	Stipa comata	Needle and thread grass		0.85	2.79		Coupland & Johnson, 1965
2311	Stipa comata	Needle and thread grass		0.99	3.25		Coupland & Johnson, 1965
2312	Stipa comata	Needle and thread grass		1.07	3.51		Coupland & Johnson, 1965
2313	Stipa comata	Needle and thread grass		1.1	3.61		Coupland & Johnson, 1965
2314	Stipa comata	needle and thread grass		1.6	5.25		Klepper et al., 1985
2315	Stipa comata	Needle and thread grass		1.52	4.99		Weaver, 1919
2316	Stipa humilis			0.45	1.48		Flombaum & Sala, 2012
2317	Stipa lettermanii	Letterman's needlegrass		0.8	2.62		Spence 1937
2318	Stipa sp.	feather grass,		0.9	2.95		Jackson et al., 2002
2319	Stipa spartea	porcupine grass		1.17	3.84		Sperry, 1935
2320	Stipa spartea	porcupine grass		0.66	2.17		Weaver, 1919
2321	Stipa spartea var. curtiseta	Porcupine grass		0.6	1.97		Coupland & Johnson, 1965
2322	Stipa spartea var. curtiseta	Porcupine grass		0.68	2.23		Coupland & Johnson, 1965
2323	Stipa spartea var. curtiseta	Porcupine grass		0.8	2.62		Coupland & Johnson, 1965
2324	Stipa spartea var. curtiseta	Porcupine grass		0.8	2.62		Coupland & Johnson, 1965
2325	Stipa spartea var. curtiseta	Porcupine grass		0.85	2.79		Coupland & Johnson, 1965
2326	Stipa spartea var. curtiseta	Porcupine grass		1.02	3.35		Coupland & Johnson, 1965
2327	Stipa spartea var. curtiseta	Porcupine grass		1.05	3.44		Coupland & Johnson, 1965
2328	Stipa spartea var. curtiseta	Porcupine grass		1.27	4.17		Coupland & Johnson, 1965
2329	Stipa spartea var. curtiseta	Porcupine grass		1.4	4.59		Coupland & Johnson, 1965
2330	Stipa speciosa	Desert needle grass		0.5	1.64		Flombaum & Sala, 2012
2331	Stipa speciosa	Desert needle grass		2.8	9.19		Schulze et al., 1996
2332	Stipa tenuis			0.6	1.97		Pelaez et al., 1994
2333	Stipa viridulias	green needlegrass		1.1	3.61		Coupland & Johnson, 1965
2334	Stipagrostis brevifolia			1.2	3.94		February et al., 2011
2335	Stipagrostis brevifolia			0.95	3.12		Shiponeni et al., 2011
2336	Stoebaria sp.			0.16	0.52		Esler & Rundel, 1999
2337	Streptopus roseus	Twistedstalk , Rosy		0.14 (0.1-0.19)	0.46 (0.33-		Antos, 1988
2338	Strychnos cocculoides	corky-bark monkey-		2	6.56		Timberlake & Calvert, 1993
2339	Strychnos innocua	monkey orange, dull-		0.9	2.95		Timberlake & Calvert, 1993
2340	Strychnos innocua	monkey orange, dull-		2.5	8.20		Timberlake & Calvert, 1993
2341	Strychnos innocua	monkey orange, dull-		2.5	8.20		Timberlake & Calvert, 1993
2342	Strychnos pungens			1.3	4.27		Timberlake & Calvert, 1993
2343	Strychnos pungens			3.1	10.17		Timberlake & Calvert, 1993
2344	Stryphnodendron			4	13.12		Rawitscher, 1948
2345	Stryphnodendron			0.7	2.30		Salis et al., 2014
2346	Styrax foveolaria			0.55	1.80		Soethe et al., 2006
2347	Suaeda asphaltica	seepweed		0.09	0.30		Schwarz, 1938
2348	Suaeda depressa					1	
2349	Suaeda fruticosa					1	
2350	Suaeda moquinii	Shrubby Seepweed				1	
2351	Suaeda suffrutescens					1	
2352	Suaeda torreyana					1	
2353	Suaeda vera, Atriplex			0.6-0.8	1.97-2.62		Badia et al., 2011
2354	Symphoricarpos orbiculatus	Coralberry, Indian		1.18	3.87		Duncan, 1935
2355	Symphoricarpos vulgaris	snowberry		1.65	5.41		Weaver, 1919
2356	Syntrichopappus fremontii		Asteraceae	0.05	0.16		Forseth et al. 1984

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2357	Syzygium guineense	Forest waterberry		1.9	6.23		Timberlake & Calvert, 1993
2358	Syzygium guineense	Forest waterberry		3.1	10.17		Timberlake & Calvert, 1993
2359	Syzygium guineense	waterberry		1.4	4.59		Timberlake & Calvert, 1993
2360	Syzygium guineense	waterberry		1.6	5.25		Timberlake & Calvert, 1993
2361	Syzygium guineense	waterberry		1.8	5.91		Timberlake & Calvert, 1993
2362	Tabebuia aurea			1.1	3.61		Salis et al., 2014
2363	Tabebuia aurea Benth.			1.2	3.94		Salis et al., 2014
2364	Tabebuia heterophylla			0.5	1.64		Cuevas et al., 1991
2365	Talguenea quinquenerd			>> 0.6	>> 1.97		Hoffmann, 1978
2366	Talinum angustissima	flameflower		0.7	2.30		Gibbens and Lenz, 2001;
2367	Talisia olivaeformis			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
2368	Talisia olivaeformis			2.0 - 3.0	6.56-9.84		Querejeta et al., 2007
2369	Tamarix aphylla	Salt-cedar	Tamaricaceae	20	65.62	1	Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
2370	Tamarix aphylla	Salt-cedar	Tamaricaceae	10	32.81	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
2371	Tamarix aphylla					1	
2372	Tamarix gallica					1	
2373	Tamarix parviflora	Smallflower Tamarisk				1	
2374	Tamarix pentandra	five-stamen Tamarisk		0.64	2.10		Gary, 1963
2375	Tamarix pentandra	five-stamen Tamarisk		3.66	12.01		Gary, 1963
2376	Tamarix pentandra	Salt-cedar		3.6	11.81		Canadell, J., Jackson, R.B., Ehleringer, J.R., Mooney, H.A., Sala, O.E. & Schulze, E.D. (1996) Maximum rooting depth of vegetation types at the global scale. Oecologia, 108, 583–595.
2377	Tamarix ramosissima	salt cedar		2	6.56	1	Arndt, et al., 2004
2378	Tamarix ramosissima	Saltcedar		10.8	35.43	1	Gries et al., 2003
2379	Tamarix ramosissima	Saltcedar		13.2	43.31	1	Gries et al., 2003
2380	Tamarix ramosissima	Saltcedar		21.9	71.85	1	Gries et al., 2003
2381	Tamarix ramosissima	Saltcedar		6.5	21.33	1	Gries et al., 2003
2382	Tamarix ramosissima	salt cedar		0.34	1.12	1	Nippert et al., 2010
2383	Tamarix ramosissima	salt cedar		0.85	2.79	1	Nippert et al., 2010
2384	Tamarix ramosissima	salt cedar		1.25	4.10	1	Nippert et al., 2010
2385	Tamarix ramosissima	salt cedar		1.45	4.76	1	Nippert et al., 2010
2386	Tamarix ramosissima	Salt-cedar		4.9	16.08	1	Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
2387	Tamarix spp.	Tamarisk		4.9	16.08		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
2388	Tamarix spp.	Tamarisk					
2389	Tamarix taklamakane			1.4	4.59		Liu et al., 2008
2390	Tarenna sp.			0.2	0.66		Becker et al., 1999
2391	Taxodium distichum	baldcypress, cypress,		2.8	9.19		Karizumi, 1979
2392	Taxus baccata Linn.	English yew, European		1.6	5.25		Karizumi, 1979
2393	Taxus cuspidata	Japanese yew		1.2	3.94		Karizumi, 1979
2394	Taxus cuspidata	Japanese yew		2	6.56		Karizumi, 1979
2395	Tectona grandis	teak		4	13.12		Howard, 1925
2396	Tectona grandis	teak		0.6	1.97		Srivastava et al., 1986
2397	Terminalia mollis	Large- leaved		2.1	6.89		Timberlake & Calvert, 1993
2398	Terminalia sericea	silver cluster leaf, lace		2	6.56		Bhattachan et al., 2012
2399	Terminalia sericea	silver cluster leaf or silver		1.2	3.94		Holdo & Timberlake,
2400	Terminalia sericea	Silver Termin Alia		15	49.21		Obakeng, 2007
2401	Terminalia sericea	clusterleaf, silver cluster		2.2	7.22		Rutherford, 1983
2402	Terminalia sericea	silver cluster leaf, silver		1.5	4.92		Timberlake & Calvert, 1993
2403	Terminalia sericea	silver cluster leaf, silver		1.5	4.92		Timberlake & Calvert, 1993
2404	Terminalia sericea	silver cluster leaf, silver		1.6	5.25		Timberlake & Calvert, 1993
2405	Terminalia sericea	silver cluster leaf, silver		2	6.56		Timberlake & Calvert, 1993

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
2406	Terminalia sericea	silver cluster leaf, silver		2	6.56		Timberlake & Calvert, 1993
2407	Terminalia sericea	silver cluster leaf,		0.61	2.00		Bhattachan et al., 2012
2408	Terminlia braachystemm	Kalahari cluster-leaf		0.6	1.97		Timberlake & Calvert, 1993
2409	Terra firme species			0.5	1.64		Jimenez et al., 2009
2410	Terra firme species			0.5	1.64		Jimenez et al., 2009
2411	Terraria bromoides			0.88	2.89		Higgins et al., 1987
2412	Tetracoccus hallii	Hall's Tetracoccus					
2413	Tetradymia axillaris		Asteraceae	2.1	6.89		Manning & Groeneveld 1989
2414	Thalictrum collinum	Lesser meadow-		0.42	1.38		Nesterova, 1996
2415	Thamnosma montana	turpentine broom		1.3	4.27		Esler & Rundel, 1999
2416	Thamnosma montana	turpentine broom	Rutaceae	1.26	4.13		Cody 1986
2417	Thermopsis rhombifolia	prairie thermopsis		0.75	2.46		Coupland & Johnson, 1965
2418	Thermopsis rhombifolia	prairie thermopsis		1.7	5.58		Coupland & Johnson, 1965
2419	Thinopymm ponticum	tall wheatgrass		0.75	2.46		Nie et al., 2008
2420	Thinopymm ponticum	tall wheatgrass		1.32	4.33		Nie et al., 2008
2421	Thlaspi alpestre	Alpine Pennycress,		0.38	1.25		Weaver, 1919
2422	Thuja occidentalis	northern white-cedar		1	3.28		Karizumi, 1979
2423	Thuja occidentalis	northern white-cedar		1.4	4.59		Karizumi, 1979
2424	Thuja occidentalis	eastern white cedar,		0.35	1.15		Matthes-Sears &
2425	Thuja occidentalis	white ceder, balsam fir,		0.54	1.77		Satterlund, 1960
2426	Thuja occidentalis	white ceder, black		0.27	0.89		Satterlund, 1960
2427	Thuja plicata	western red cedar		0.37	1.21		Eis, 1974
2428	Thuja plicata	western red cedar		1.19	3.90		Eis, 1974
2429	Thuja standishii	Japanese Thuja		1.2	3.94		Karizumi, 1979
2430	Thujopsis dolabrata	false arborvitae,		1.9	6.23		Karizumi, 1979
2431	Thymelaea hirsuta			3.5	11.48		Veste & Breckle, 1996
2432	Tidestromia lanuginosa		Amaranthaceae	0.3	0.98		Forseth et al. 1984
2433	Tilia americana	American basswood		1.7	5.58		Sprackling and Read,
2434	Tofieldia pusilla	Scottish asphodel,		0.015	0.05		Jonasson & Callaghan,
2435	Tofieldia pusilla	Scottish asphodel,		0.019	0.06		Jonasson & Callaghan,
2436	Torreya nucifera Sieb.	kaya, Japanese		2	6.56		Karizumi, 1979
2437	Toxicodendron diversilobum						
2438	Toxylon pomiferum	Osage orange		9.75	31.99		Bunger & Thomson,
2439	Tradescantia reflexa	prairie spiderwort		1.56	5.12		Sperry, 1935
2440	Tradescantia virginiana	Virginia spiderwort		0.48	1.57		Weaver, 1919
2441	Trichacereus chiloensis			0.3	0.98		Hoffmann, 1978
2442	Trichostigma octandrum	Hoopvine, black basket		0.6	1.97		Johnson et al., 2013
2443	Trifolium dasyphyllum	Shaggy Leaf Trifolium		0.38	1.25		Daubenmire, 1941
2444	Trifolium parryi	Parry Clover		0.24	0.79		Daubenmire, 1941
2445	Trifolium trichocephalus	clover		1.25	4.10		Lichtenegger & Kutschera-
2446	Trigonella balansae			2	6.56		Lichtenegger & Kutschera-
2447	Triticum aestivum	winter wheat		1	3.28		Glover et al., 2010
2448	Triticum turgidum L.	Durum wheat		> 1.6	>5.25		Cardin Ael et al., 2015
2449	Triumfetta amuletum			1.9	6.23		Timberlake & Calvert, 1993
2450	Tsuga canadensis	eastern hemlock,		1.4	4.59		Karizumi, 1979
2451	Tsuga diversijolia	northern Japanese		1.4	4.59		Karizumi, 1979
2452	Tsuga heterophylla	western hemlock		0.37	1.21		Eis, 1974
2453	Tsuga heterophylla	western hemlock		1.25	4.10		Eis, 1974
2454	Tsuga heterophylla	western hemlock		0.6	1.97		Eis, 1987
2455	Tsuga heterophylla	western hemlock		0.85	2.79		Eis, 1987
2456	Tsuga heterophylla	western hemlock		1.2	3.94		Eis, 1987
2457	Tsuga sieboldii Carr.	southern Japanese		1.9	6.23		Karizumi, 1979
2458	Typha angustifolia	Narrowleaf Cattail					
2459	Typha domingensis	Southern Cattail	Typhaceae	0.27	0.89		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants
2460	Typha latifolia	Broadleaf Cattail	Typhaceae	0.25	0.82		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix A. Rooting data for herbaceous plants

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
2461	Typha spp.	Cattail					
2462	typical composition			1.7	5.58		Jobbagy & Jackson, 2004
2463	Uapaca kirkiana	sugar plum		0.8	2.62		Timberlake & Calvert, 1993
2464	Uapaca kirkiana	sugar plum		1.4	4.59		Timberlake & Calvert, 1993
2465	Uapaca kirkiana	sugar plum		1.4	4.59		Timberlake & Calvert, 1993
2466	Uapaca nitida	Narrow- leaved		1.5	4.92		Timberlake & Calvert, 1993
2467	Ulex europaeus, U.	common gorse, dwarf		0.7	2.30		Bakker et al., 2006
2468	Ulex europaeus, U.	common gorse, dwarf		1.3	4.27		Bakker et al., 2006
2469	Ulex jussiaei			1.5	4.92		Silva & Rego, 2004
2470	Ulmus americana	Texas Cedar Elm		7	22.97		Jackson et al., 1999
2471	Ulmus americana	American elm		1.8	5.91		Sprackling and Read,
2472	Ulmus americana	American elm		2.2	7.22		Sprackling and Read,
2473	Ulmus crassifolia	Texas Cedar Elm		5	16.40		Jackson et al., 1999
2474	Ulmus crassifolia	Texas Cedar Elm		7	22.97		Jackson et al., 1999
2475	Ulmus crassifolia	Texas Cedar Elm		9	29.53		Jackson et al., 1999
2476	Ulmus pumila	Asiatic elm		9.14	29.99		Bunger & Thomson,
2477	Ulmus pumila	Siberian elm		2	6.56		Sprackling and Read,
2478	Ulmus pumila	Siberian elm		2.9	9.51		Sprackling and Read,
2479	Ulmus pumila	Siberian elm		4.9	16.08		Sprackling and Read,
2480	Ulmus rubra	Slippery elm		2.1	6.89		Sprackling and Read,
2481	Umbellularia californica	California Bay					
2482	us	green rabbitbrush		1.6	5.25		Klepper et al., 1985
2483	Vaccinium angustifolium	lowbush blueberry		> 0.3(rhizome)	> 0.98		Whittle et al., 1998
2484	Vaccinium myrtilloides	common blueberry,		> 0.3(rhizome)	> 0.98		Whittle et al., 1998
2485	Vaccinium myrtillus	common bilberry,		0.007	0.02		Jonasson & Callaghan,
2486	Verbena stricta	Hoary verbena		1.22	4.00		Weaver, 1919
2487	Vernonia baldwinii	Vernonia baldwinii		3.51	11.52		Weaver, 1919
2488	Vernonia grandiflora			0.45	1.48		Rawitscher, 1948
2489	Vicia americana	American vetch		1.4	4.59		Spence 1937
2490	Vicia americana		Fabaceae	1.4	4.59		Spence 1937
2491	Viguiera reticulata						
2492	Viola conspersa	dog violet		0.07	0.23		Sherff, 1912
2493	Viola cucullata	Hooded Blue Violet,		0.06	0.20		Sherff, 1912
2494	Viola purpurea	goosefoot violet		> 2.0	> 6.56		Spence 1937
2495	Vismia glaziovii			0.55	1.80		Pavlis & Jenik, 2000
2496	Vismia japurensis			0.35	1.15		Pavlis & Jenik, 2000
2497	Vismia macrophylla			0.28	0.92		Pavlis & Jenik, 2000
2498	Vismia tomentosa			1.05	3.44		Soethe et al., 2006
2499	Vitis californica	California Grape					
2500	Vitis vulpina	frost grape		4.11	13.48		Weaver, 1919
2501	Washingtonia filifera	California Fan Palm				1	
2502	Watsonia pyramidata			0.4	1.31		Higgins et al., 1987
2503	Weinmannia loxensis			0.65	2.13		Soethe et al., 2006
2504	Wendalendia exserta			2.1	6.89		Das & Chaturvedi,
2505	Whipplea modesta		Hydrangeaceae	0.49	1.61		Antos & Halpern 1997
2506	Woodwardia fimbriata	Chain fern					
2507	Wyethia amplexicaulis	mule-ears (black		1.96	6.43		Weaver, 1915
2508	Wyethia amplexicaulis		Asteraceae	1.82	5.97		Weaver 1917
2509	Xanthium strumarium					1	
2510	Yucca brevifolia					1	
2511	Yucca elata	soap tree yaca		0.9	2.95		Gibbens and Lenz, 2001;
2512	Yucca glauca	soapweed yucca		2.13	6.99		Weaver, 1919
2513	Yucca schidigera	Mojave yucca or		0.6	1.97		Esler & Rundel, 1999
2514	Yucca schidigera		Agavaceae	0.55	1.80		Cody 1986
2515	Yucca whipplei	Chaparral yucca		> 0.76	> 2.49		Hellmers et al., 1955
2516	Yucca whipplei	Chaparral yucca	Agavaceae	0.76	2.49		Hellmers et al. 1955
2517	Zanthoxylum americanum	Prickly-ash		1.6	5.25		Sprackling and Read,

	A	B	C	D	E	F	G
1	**Scientific Name**	**Common Name**	**Family**	**Max Rooting Depth (m)**	**Max Rooting Depth (feet)**	**CA Phreatophytes**	**Reference**
2518	Zanthoxylum fagara	Wild Lime		1.4	4.59		Midwood et al., 1998
2519	Zanthoxylum fagara	Wild Lime		1.6	5.25		Midwood et al., 1998
2520	Zanthoxylum rigidum			1.4 (1.1 +/-0.3)	4.59 (3.61 +/-		Salis et al., 2014
2521	Zea mays	corn		0.3	0.98		Elliott, 1924
2522	Zea mays	maize		0.8	2.62		Jonsson, 1988
2523	Zea mays	corn		1.6	5.25		Livesley et al., 2000
2524	Zea mays L.	corn		0.52	1.71		Follett et al., 1974
2525	Zea mays L.	corn		0.72	2.36		Follett et al., 1974
2526	Zea mays L.	corn		0.73	2.40		Follett et al., 1974
2527	Zea mays L.	corn		0.81	2.66		Follett et al., 1974
2528	Zea mays L.	corn		0.81	2.66		Follett et al., 1974
2529	Zea mays L.	corn		0.82	2.69		Follett et al., 1974
2530	Zea mays L.	corn		0.83	2.72		Follett et al., 1974
2531	Zea mays L.	corn		0.85	2.79		Follett et al., 1974
2532	Zea mays L.	corn		0.91	2.99		Follett et al., 1974
2533	Zea mays L.	corn		0.91	2.99		Follett et al., 1974
2534	Zea mays L.	corn		> 1.4	> 4.59		Neykova et al., 2011
2535	Zea mays L.	corn		> 1.4	> 4.59		Neykova et al., 2011
2536	Zenia acerosa	desert zinnia,		1.1	3.61		Gibbens and Lenz, 2001;
2537	Zinnia grandiflora	desert zinnia		1.5	4.92		Gibbens and Lenz, 2001;
2538	Ziziphus abyssinica	Large jujube		2.2	7.22		Timberlake & Calvert, 1993
2539	Ziziphus jujube	jujube, red date,		10	32.81		Ma et al., 2013; 2014
2540	Ziziphus mucronata	Buffalo Thorn		8	26.25		Obakeng, 2007
2541	Ziziphus obtusifolia	Texas buckthorn		1.6	5.25		Midwood et al., 1998
2542	Ziziphus obtusifolia	Texas buckthorn		2	6.56		Midwood et al., 1998
2543	Ziziphus obtusifolia		Rhamnaceae	1.4	4.59		Stromberg, J. 2013. Root patterns and hydrogeomorphic niches of riparian plants in the American Southwest. Journal of Arid Environments 94 (2013) 1-9. Appendix B. Rooting data for shrubs and trees.
2544	Zygophyllum dumosum			1.68	5.51		Schwarz, 1938
2545	Zygophyllum prismatocarp			0.17	0.56		Esler & Rundel, 1999

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
3	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
4	Michigan	Boreal forest	0-6" sandy loam, 6-24" loamy	tree	excavation						
5	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
6	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
7	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
8	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
9	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
10	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
11	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
12	Ontario, CA	Boreal forest	0-6" silt loam, 6-24" loam	tree	excavation						
13	Ontario, CA	Boreal forest	0-6" silt loam, 6-24" sand	tree	excavation						
14	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
15	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
16	Ontario, CA	Boreal forest	0-6" silty clayloam, 6-24" silt	tree	excavation						
17	Michigan	Boreal forest	0-6" loam, 6-24" sandy loam	tree	excavation						
18	Michigan	Boreal forest	0-6" sand, 6-24" sand	tree	excavation						
19	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
20	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol,	tree	trenchwall						
21	SE of Lesser Slave Lake,	boreal mixed forest	Gray Luvisol	tree	trenchwall						
22										1	
23	western Sichuan	subalpine coniferous		tree, overstory	20cm soilblocks to						
24	Nine-state, Hokkaido,	temperate broadleaf	sand loam to humus loam	tree	excavation						
25	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
26	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
27	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
28	Nine-state, Hokkaido,	temperate broadleaf	shallow sandy loam on volcanic	tree	excavation						
29	Nine-state, Hokkaido,	temperate broadleaf	shallow sandy loam on volcanic	tree	excavation						
30	Nine-state, Hokkaido,	temperate broadleaf	shallow sandy loam on volcanic	tree	excavation						
31	Mojave Desert, California, USA	temperate desert	fine-textured soil	forb		annual	35.011	-115.4734	Lo		
32	Death Valley, California, USA	temperate desert	sand	prostrate forb		annual	36.5323	-116.9325	Sa		
33	S California, USA	subtropical desert	sand	prostrate forb		perennial			Sa		
34	South Senegal,	tropical rainforest		tree	soil coring						
35	Central Senegal,	grass savanna		tree	soil coring						
36	Central Senegal,	grass savanna		tree	soil coring						
37	South Senegal,	tree savanna		tree	soil coring						
38	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
39	Pusa, Bihar, NE India	agrisivicultur e: trees	sandy loam	tree	soil cores+						
40	N. Dande Com Ld, N	subtropical dry forest	sand	small tree	excavation						
41	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
42	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
43	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
44	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
45	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
46	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
47	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
48	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
49	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
50	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
51	C. Hurungwe Com Ld, N.	subtropical dry forest	loamy sand (poorly drained)	tree	excavation						
52	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
53	Chilanga, S. Zambia	subtropical dry forest	clay	tree	excavation						
54	Arizona	NR	NR	Shrub	Personal observation					1	ND
55	Maroua, extreme N	Sudano- Sahelian	sandy (0.4m), sandy-clay deep	legumous tree	excavation to 1.5m						
56	Kalahari Sandveld of	the south site	deep sand	tree	soil pits						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
57	East Kalemantan,	near Kenangan,	deeply weathered SL-	legume tree	soil coringt 3m						
58	Kalahari Sandveld of	the north site	deep sand	tree	soil pits						
59	Sasame Riv, N. Gokwe, N.	subtropical dry forest	clay loam (alluvium)	tree	excavation						
60	N. Dande Com Ld, N	subtropical dry forest	sandy loam (alluvium)	tree	excavation						
61	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated karoo sands	tree	excavation						
62	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
63	Turkana County, NW	subtropical dry forest	deep sandy soils	tree	excavation						
64	Sasame Riv, N. Gokwe, N.	subtropical dry forest	clay loam (alluvium)	tree	excavation						
65	Maroua, extreme N	Sudano- Sahelian	clay, 40-45% smectite, dry-	legumous tree	excavation to 1.5m						
66	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
67	Turkana County, NW	subtropical dry forest	deep sandy soils	tree	excavation						
68	Sahel, northern	arid desert	deep and sandy	tree	soilsamples						
69	N. Dande Com Ld, N	subtropical dry forest	sandy loam (alluvium)	tree	excavation						
70	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
71	Mojave desert,	Arid desert		subshrub	excavation						
72	Mojave Desert,		granite alluvium	shrub	excavation						
73	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Ro		
74	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	tree	deep wells (shafts)						
75	Swakopmund, Erongo,	arid desert		shrub	excavation						
76	Northern Sahara,	arid desert		shrub	excavation						
77										1	
78										1	
79	E. Nebraska	Prarie with planted and	Wabash clay	tree	excavation						
80	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
81	Missouri	Upland	clay	Tree	Excavation					1	Y
82	Central MA, Harvard	temperate deciduous	fine sandy loam, free drained and	tree	soil pits						
83	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
84	Ithaca, NY	temporate hardwood	glacial till, silty loam,	tree	soilcores/pits						
85	N. lower peninsula,	temperate hardwood	Alfic and Typic Haplorthods on	tree	minirhizotrons to						
86	N. lower peninsula,	temperate hardwood	Entic and Typic Haplorthods on	tree	minirhizotrons to						
87	near Cincinnati,	temperate deciduous	silty-clay colluvium	tree	excavation						
88	near Cincinnati,	temperate deciduous	silty-clay colluvium	tree	excavation + trench						
89	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree, vine	trenchwall,						
90	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree	trenchwall,						
91	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree	trenchwall,						
92	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree	trenchwall,						
93	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree	trenchwall,						
94	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree, vine	trenchwall,						
95	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree	trenchwall,						
96	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree	trenchwall,						
97	Zailiisky Alatau Range,	dry steppe		tree	trench						
98	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb	trenchwall						
99	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic			perennial	43.8207	-117.026	Sa		
100	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
101	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	cespitose grass		perennial	46.6475	-119.5986	LoSa		
102	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	cespitose grass		perennial	46.6475	-119.5986	LoSa		
103	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	cespitose grass		perennial	46.6475	-119.5986	LoSa		
104	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	cespitose grass		perennial	43.8207	-117.026	Sa		
105	W of Tsavo Natl Park, S	thorn bushland		emergent tree	gully bankexposure						
106	British Somaliland	semi-arid desert	alluvial sand	shrub	excavation						
107	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
108	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
109	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
110	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
111	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
112	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		
113	San Gabrial / Bernardino	Chaparral	sandy loam, on loose rock	shrub	excavation						
114	San Gabrial / Bernardino	Chaparral	either gravel terraces or	shrub	road cut						
115	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
116	California, USA	mediterranean sclerophyllous shrubland	silty to sandy	shrub		perennial	36.7783	-119.4179	LoSa		
117	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	tall shrub	excavation						
118	INTA Rio Mayo,	Patagonian steppe	coarse textured with gravel and	shrub	unclear						
119	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
120	Deep Canyon Desert Research Center, California	subtropical desert	sand	succulent		perennial	33.38	-116.24	Sa		
121	S California, USA	subtropical desert	sand							1	
122	SE Idaho, INEL	semi-arid shrub-steppe	sandy loam to clay; calcic	bunch grass	131I radiotracer						
123	E of Idaho Falls, ID	semi-arid shrub-steppe	aeolian sandy loam and loess	grass	32P radiotracer						
124	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
125	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
126	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
127	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
128	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
129	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
130	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
131	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
132	Gem County, Idaho	semi-arid pasture	Brent silt loam, developed on an	grass	growthcloth bags						
133	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	grass	excavation						
134	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, fair	grass	trenchwall						
135	Gem County, Idaho	semi-arid pasture	Brent silt loam, developed on an	grass	growthcloth bags						
136	southern Saskatchewan	Canadian Prairies	sand	sod-forming	trenchwall						
137	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
138	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
139	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
140	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
141	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
142	near Pullman, SE	High Prairie	fine silt-loam, can be very	bunch grass	excavation						
143	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
144	N. Illinoise near Lake	temperate riparian	black muck or partially	grass	excavation						
145	Marin County, N-C	Mediterrane an grassland	sandy loam, sandstone/shale	rhizomatous grass	soil coring						
146	Kentucky	NR	NR	Tree	Excavation					0	ND
147	Judaean Desert, Israel	arid desert		leaf succulent forb							
148	Zailiisky Alatau Range,	dry steppe		shrub	trench						
149	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
150	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
151	Zailiisky Alatau Range,	dry steppe		rhizomatous herb	trench						
152	NW Guangxi province, SW	subtropical moist forest	rock outcrops, soil (loam) or	shrub	excavation						
153	NW Guangxi province, SW	subtropical moist forest	1m soil-rock frag mixture,	shrub	excavation						
154	NW Guangxi province, SW	subtropical moist forest	thin soil (<30cm), clay to	shrub	excavation						
155	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
156											
157	Southern Kazakhstan	xeric shrubland	meadow Sierozem	small thorny shrub	excavation						
158	Taklamakan desert, W.	arid desert	pure silt	herb	excavation						
159	Takalamakan, W. Chin A	desert	pure silt	shrub	in-growthtubes						
160	Tooele Valley, Utah	arid valleys of the US SW	clay	shrub	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
161										1	
162	Springtown, Livermore, CA	Wetland	Clay. In alkali sink. Disturbed soils.		Field verification					1	
163	Death Valley, California, USA	subtropical semi-desert	sand to silt	prostrate forb		annual	36.5323	-116.9325	Si		
164										1	
165										1	
166										1	
167										1	
168											
169										1	
170	near Windhoek,	semiarid desert		leaf succulent shrub	excavation						
171	British Somaliland	semi-arid desert	alluvial sand	herb	excavation						
172	Sonoran Desert,	arid desert	adobe clay, amlpais (from	herb	excavation						
173	Death Valley, California, USA	subtropical semi-desert	sand to silt	forb		annual	36.5323	-116.9325	Si		
174	Death Valley, California, USA	subtropical semi-desert	sand to silt	forb		annual	36.5323	-116.9325	Si		
175	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb	excavation						
176	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
177	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
178	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
179	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
180	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
181	Mojave desert,	Arid desert		shrub	excavation						
182	S California, USA	subtropical desert		semi-shrub		perennial	34.33	-116.53			
183	Illinoise	temperate deciduous	coarse yellow sand	herb	excavation						
184	Kansas	short-grass prairie	silty clay loam	Herbaceous perennial: Clonal forb	Excavation					1	
185										1	
186	Northern Minnesota	Boreal forest	coarse sand	shrub	excavation						
187	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (clonal)	excavation						
188	NC North Dokota	temperate steppe	deep dune sand	herb	hydraulicexcavatio						
189	Prairies of E. Nebraska	prairie	loess	herb	excavation						
190	Subclimax Prairies, near	prairie- chaparral	more adundance of	herb	excavation						
191	Israel, Negev desert, duns	arid desert	dune sand	shrub (salt- tolerant	excavation						
192	Southern Kazakhstan	xeric shrubland	saline crust	shrub, stem succulent	excavation						
193	outside Panama,	seasonal-dry tropical	Ancon clay with ≥ 25% clay and ≥	host tree	soil coring						
194	near Guacabe,	Tropical moist pre-	sandy, low fertility, acidic	tree	excavation						
195	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	small tree	deep wells (shafts)						
196	Illinoise	temperate deciduous	coarse yellow sand	grass	excavation						
197	Illinoise	temperate deciduous	brown Silt Loam on Drift, well	grass	excavation						
198	Illinoise	temperate deciduous	brown silt loam	grass	excavation						
199	Illinoise	temperate deciduous	black clay loam, high lime	grass	excavation						
200	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
201	Subclimax Prairies, near	prairie- chaparral	mellow loess	bunch grass	excavation						
202	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	bunch grass	excavation						
203	Prairies of E. Nebraska	prairie	clay loam for 1.07m over pure	bunch grass	excavation						
204	Illinoise	temperate deciduous	coarse yellow sand	grass	excavation						
205	Prairies of E. Nebraska	prairie	gravelly mixed withsand	bunch grass	excavation						
206	Prairies of E. Nebraska	prairie	clay loam over clay	bunch grass	excavation						
207	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	bunch grass	excavation						
208	Engeling, TX	savanna and woodland		grass	soil coring						
209	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
210	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
211	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
212	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
213	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
214	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
215	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
216	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
217	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
218	southern Saskatchewan	Canadian Prairies	gravel subsoil	forb	trenchwall						
219	Arizona	Stream bank	NR		Excavation					1	
220	Brunei, Andulau	Tropical rainfores	2-15cm O, clay-sand, clay	small tree	excavation						
221	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	subshrub	excavation						
222	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	subshrub	excavation						
223	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
224	Sweedish Lapland	tundra		forb	excavation						
225	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
226	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
227	Almeria, SE Spain	Dry Mediterrane	alluvial loamy sands and fine	shrub	coring						
228	Central Tunisia	Saharian desert	loamy sand	xerophytic shrub	excavation						
229				legumous forb	excavation						
230	Brunei, Andulau	Tropical rainfores	2-15cm O, clay-sand, clay	small tree	excavation						
231	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
232											
233	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb / subshrub	trenchwall						
234	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
235	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	forb (rapid spreading	excavation						
236	Mbeya Peak, SW Tanzania	Afromontane forest	Gneissic-derived sandy loam	tree	excavation						
237	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
238	Nine-state, Hokkaido,	temperate broadleaf	sandy soil	tree	excavation						
239	Nine-state, Hokkaido,	temperate broadleaf	sandy loam to sand	tree	excavation						
240	S. France	Mediterrane an	Shallow soil, with mostly	shrub	elec.Resis.						
241	S. France	Mediterrane an	Shallow soil, with mostly	shrub	elec.Resis.						
242	S. France	Mediterrane an	Shallow soil, with mostly	shrub	elec.Resis.						
243	S. France	Mediterrane an	Shallow soil, with mostly	shrub	elec.Resis.						
244	S. France	Mediterrane an	Shallow soil, with mostly	shrub	elec.Resis.						
245	Central Portugal	Mediterrane an shrubland	schist lithossols	shrub or small tree	excavation						
246	San Gabrial / Bernardino	Chaparral	sandy loam, on loose rock	shrub	excavation						
247	San Gabrial / Bernardino	Chaparral	either gravel terraces or	shrub	road cut						
248	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		
249	San Gabrial / Bernardino	Chaparral	sandy loam (0.15m), loose	shrub	excavation						
250	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
251	California, USA	mediterranean sclerophyllous shrubland	coarse gravel on granodiorite	shrub		perennial	34.2	-117.76	Sa		
252	California, USA	mediterranean sclerophyllous shrubland	shallow on fractured shale	shrub		perennial	37.01	-122.2	Ro		
253	California, USA	mediterranean sclerophyllous shrubland	shallow on fractured shale	shrub		perennial	37.76	-122.16	Ro		
254	Southern Sierras, CA	Mediterrane an woodland	coarse loamy	shrub	soil/rocksampling +						
255	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	woody ground cover	exavation						
256	Front Range Rockies, near	mountain forest	loose fine grey sand on	woody ground cover	exavation						
257	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	woody ground cover	exavation						
258	Medicine Bow Range,	alpine tundra	stony scree	forb	exavation						
259	Medicine Bow Range,	alpine tundra	stony scree	forb	exavation						
260	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
261										1	
262	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	geophyte	excavation						

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1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
263	Prairies of E. Nebraska	prairie	clay-loam	bunch grass	excavation						
264	Ain Sefra, NW Algeria	arid desert, Sahara	dune sand	grass	excavation						
265	Chihuahuan Desert, New	xeric shrubland	fine loamy	grass	excavation						
266	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	grass	excavation						
267	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	bunch grass	excavation						
268	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	shrub	deep wells (shafts)						
269	Zailiisky Alatau Range,	dry steppe		tree	trench						
270										1	
271										1	
272										1	
273	NR	NR	NR	Herbaceous perennial: Clonal fb/sbshrb	NR					1	
274	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	shrub	excavation						
275	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
276	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
277	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
278	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
279	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
280	southern Saskatchewan	Canadian Prairies	sand	woody shrub	trenchwall						
281	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
282	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
283	southern Saskatchewan	Canadian Prairies	loam	woody shrub	trenchwall						
284	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	small shrub	excavation						
285	Bajo Cinca, NE Spain	Mediterran desert	thin loam, with stone	nitrohalophilous herb	soil pits						
286										1	
287	Zailiisky Alatau Range,	dry steppe		shrub	trench						
288	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
289	E California	temperate desert	rocky sandy loam	semi-shrub perennial						1	
290	Southern Kazakhstan	xeric shrubland	loamy Sierozem	shrub, sclerophyte	excavation						
291	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	shrub	excavation						
292	Hanford, SC Washington	semi-arid shrub-steppe	silty loam	shrub	soil coring						
293	Rexburg, E Idaho	semi-arid shrub-steppe	sandy loam of lava origin	shrub	excavation						
294	E of Idaho Falls, ID	semi-arid shrub-steppe	aeolian sandy loam and loess	shrub	32P radiotracer						
295	E of Idaho Falls, ID	semi-arid shrub-steppe	clayey silt	shrub	32P radiotracer						
296	Logan, Utah	semi-arid shrub-steppe	gravelly loam to sandy loam	shrub	excavation						
297	SC Wyoming	temperate steppe	Loamy-skeletal	shrub	excavation						
298	SC Wyoming	temperate steppe	Loamy-skeletal	shrub	excavation						
299	SC Wyoming	temperate steppe	fine loamy	shrub	excavation						
300	NW Wyoming	mountain forest	clay-loam to 0.91m, over	shrub	excavation						
301	NW Wyoming	mountain forest	clay-loam to 0.91m, over	shrub	excavation						
302	NW Wyoming	mountain forest	clay-loam to 0.91m, over	shrub	excavation						
303	NW Wyoming	mountain forest	clay-loam to 0.91m, over	shrub	excavation						
304	SE Idaho, INEL	semi-arid shrub-steppe	sandy loam to clay; calcic	shrub	131I radiotracer						
305	Hanford, SC Washington	shrub-steppe	Ritzville silt-loam	shrub	soil coresto 1.6m						
306	central Nevada	riparian medow	Pachichaplocryoll	shrub	soil pit						
307	central Nevada	riparian medow	Pachiccryoboroll,	shrub	soil pit						
308	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
309	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
310	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
311	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
312	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
313	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
314	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
315	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
316	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
317	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
318	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
319	SE Washington, USA	temperate semi-desert	silt over bedrock	shrub		perennial	46.242	-119.2	Si		
320	Idaho, USA		aeolian sandy loam							1	
321										1	
322	E California, USA	temperate desert	rocky sandy loam	shrub		perennial	37.16666667	-118.2833333	SaLo		
323	E California	temperate desert	rocky sandy loam	shrub perennial						1	
324										1	
325	Kin Ale, Kenya	grass savanna	sandy loam, clay, high-perm	grass	excavation						
326	NR	NR	Sand	Herbaceous perennial: Clonal graminoid	NR					0	
327	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
328	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
329	Illinoise	temperate deciduous	coarse yellow sand	herb	excavation						
330	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb / subshrub	excavation						
331	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
332			moderately deep to cleep	forb	excavation						
333	Illinoise	temperate deciduous	brown silt loam	herb	excavation						
334	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	herb	excavation						
335											
336	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb	trenchwall						
337	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
338	Prairies of E. Nebraska	prairie	1ft loam on 3ft exceedingly	herb	excavation						
339	in north of Caucasus,			shrub	excavation						
340	Boise, Idaho	semi-arid shrub-steppe	Granitic clay, thin humus	forb	trenchwall						
341	near Nam Tso lake, central	alpine meadow		herb	unclear						
342	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
343	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
344	Chihuahuan Desert, New	xeric shrubland	fine silt	shrub	excavation						
345	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	shrub	excavation						
346	N-central Colorado,	temperate steppe	sandy loam, 79% sand, 10% silt	shrub	excavation + soil						
347	Mojave desert,	Arid desert		shrub	excavation						
348	NR	NR	NR		NR					1	
349	Mojave desert,	Arid desert		shrub	excavation						
350	NR				NR					1	
351	Judaean Desert, Israel	arid desert		shrub							
352	Israel		alluvia soils/run-on habitats							0	
353											
354										1	
355										1	
356	S. NSW, SE Astralia	temperate steppe	loamy clay 1m, sandy clay at 2m	shrub	H isotopesin stem						
357	S. NSW, SE Astralia	temperate steppe	0.3m sandy loam A, light	shrub	H isotopesin stem						
358	S. NSW, SE Astralia	temperate steppe	0.2m sandy loam A, light	shrub	H isotopesin stem						
359	S. NSW, SE Astralia	temperate steppe	0.1m sandy loam A, light	shrub	H isotopesin stem						
360										1	
361										1	
362										1	
363										1	
364										1	
365	Xin Jiang Uygur, NW	xeric shrubland	chloride-sulfate saline soi	C4 grass	soilsample						
366	Owen Valley, CA	arid desert	sandy	shrub	trenchwall + soil						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
367	E California, USA	temperate desert	clay loam, water table at 1 m	shrub		perennial	37.16666667	-118.2833333	ClLo		
368	E California, USA	temperate desert	clay loam, water table at 1 m	shrub perennial						1	
369	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	tree	deep wells (shafts)						
370	Marin County, N-C	Mediterrane an grassland	sandy loam, sandstone/shale	grass	soil coring						
371	S California, USA	mediterranean grassland	clay loam over clay	grass		annual			ClLo		
372	S. Austria	temperate broadleaf		grass	excavation						
373	Pusa, Bihar, NE India	agrisivicultur e: trees	sandy loam	tree	soil cores+						
374	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	small tree	excavation						
375										1	
376										1	
377	Salt River, C. Arizona	Riparian forest	clay 1', sand/gravel 2'	shrub	excavation						
378	California, USA		sandy loam on granodiorite	shrub		perennial	39.7783	-119.4179	SaLo		
379	California, USA	NR	sandy loam on granodiorite	shrub perennial						1	
380	Richmond, Point Molate, CA	Shrubland	Loam		Field verification. Observed slides at Point Molate where plants found at this rooting depth, these may go deeper.					1	
381	N California, USA	mediterranean grassland		shrub		perennial					
382	N California, USA	mediterranean grassland	NR	shrub perennial						1	
383	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
384	Arizona	Stream bank	NR	Shrub	Excavation					1	Y
385											
386										1	
387										1	
388											
389	North province, W	tree savanna / subtropical	deep, medium-textured	tree	excavation						
390	Lup ane, W. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
391	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	tree	excavation						
392	Gokwe, N. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
393	near Secheke, SW Zambia	subtropical dry forest	Kalahari sand	tree	excavation						
394	near Secheke, SW Zambia	subtropical dry forest	Karoo sand	tree	excavation						
395	Sasame Riv, N. Gokwe, N.	subtropical dry forest	clay loam (alluvium)	tree	excavation						
396	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb / subshrub	excavation						
397	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
398	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, very	forb	trenchwall						
399	Boise, Idaho	semi-arid shrub-steppe	granitic clay, thin humus	forb	trenchwall						
400	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
401	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
402	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	forb		perennial	43.8207	-117.026	Sa		
403	Whiteman Park, SW	Mediterra woodland	deep medium-coarse sand	tree	soil cores						
404	Near Perth, Western	Meditarrane an woodland	humus podzol:leached grey	trees, tall shrubs,	soil coringto water						
405	Near Perth, Western	Meditarrane an woodland	humus podzol:leached grey	trees, tall shrubs,	soil coringto water						
406	Near Perth, Western	Meditarrane an woodland	humus podzol:leached grey	trees, tall shrubs,	soil coringto water						
407	SW Australia	sclerophyuou s scrub-heath	deep, freelydrained, podzol	tree	excavation						
408	Whiteman Park, SW	Mediterra woodland	deep medium-coarse sand	tree	soil cores						
409	SW Australia, near Perth	Mediterra woodland	deep Bassendean	tree	H isotope, excavatio						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
410	N. Dande Com Ld, N	subtropical dry forest	sand	tree	excavation						
411	near Kitwe, N. Zambia	subtropical dry forest	sand	tree	excavation						
412	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
413	Prairies of E. Nebraska	prairie	loess	herb	excavation						
414	Sweedish Lapland	tundra		forb	excavation						
415	western Sichuan	subalpine coniferous		grass, understory	20cm soilblocks to						
416	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	shrub	excavation						
417	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	shrub	excavation						
418	Pusa, Bihar, NE India	agrisivicultur e: trees	sandy loam	tree	soil cores+						
419	WC Costa Rica,	moist tropical	loam, on sandy-loam, on clay-	tree	excavation						
420	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	tall shrub	excavation						
421	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	shrub		perennial	44.16	-122.34	Lo		
422	near Pullman, SE	High Prairie	fine silt-loam, can be very	shrub	excavation						
423	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	herb	excavation						
424										1	
425	N. Siberia, Russia	Tundra (tussock-		drawf shrub	soil coring						
426										1	
427	Minitoba (Canada) and	Boreal forest	fairly deep soil with the frost	tree	excavation						
428	North Kazakhstan	forest steppe	deep weakly saline meadow-	tree	trench +cores						
429	Lapland, Sodankyla, N.	boreal forest	stone-free heath sand	tree	excavation						
430	western Sichuan	subalpine coniferous		tree, midstory	20cm soilblocks to						
431	northern Kyoto City,	wetland	peat	herb	excavation for						
432											
433	Nine-state, Hokkaido,	temperate broadleaf	loam	small tree	excavation						
434	Nine-state, Hokkaido,	temperate broadleaf	humus loam	small tree	excavation						
435	Death Valley, California, USA	subtropical semi-desert	sand to silt	prostrate forb		annual	36.5323	-116.9325	Si		
436	Death Valley, California, USA	subtropical semi-desert	sand to silt	forb		annual	36.5323	-116.9325	Si		
437										1	
438										1	
439	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
440	Pusa, Bihar, NE India	agrisivicultur e: trees	sandy loam	tree	soil cores+						
441	Phuduhudu, cen. Kalahari,		deep sandy soils, finer in	tree	deep wellbores						
442	near Werda, S. Kalahari		deep sandy soils, finer in	tree	deep wellbores						
443	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
444	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
445	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
446	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
447	Chihuahuan Desert, New	xeric shrubland	fine loamy	grass	excavation						
448	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	grass	excavation						
449	Sevilleta, NM	savanna and woodland		grass	soil coring						
450	Jornada, NM	savanna and woodland		grass	soil coring						
451	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
452	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
453	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
454	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
455	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
456	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
457	southern Saskatchewan	Canadian Prairies	loam	sod-forming	trenchwall						
458	southern Saskatchewan	Canadian Prairies	sand	sod-forming	trenchwall						
459	Central Plains Experimental	savanna and woodland		grass	soil coring						
460	N-central Colorado,	temperate steppe	sandy clay loam, 67% sand, 13%	bunch grass	excavation + soil						
461	N-central Colorado,	temperate steppe	sandy loam, 79% sand, 10% silt	bunch grass	excavation + soil						
462	Prairies of E. Nebraska	prairie	porous coarse sandy - gravelly	bunch grass	excavation						
463	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	C4 short grass	excavation						
464	Cananea, Mexico, near	xeric shrubland	alluvium, with much gravel and	grass	O-18						
465	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
466	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	cushion shrub	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
467	Marin County, N-C	Mediterrane an grassland	sandy loam, sandstone/shale	grass	soil coring						
468	C. Omay Com Ld, N.	subtropical dry forest	shallow loamy sand	tree	excavation						
469	Dagamela, C. Nkayi, W.	subtropical dry forest	loamy sand	tree	excavation						
470	C. Hurungwe Com Ld, N.	subtropical dry forest	loamy sand (poorly drained)	tree	excavation						
471	C. Hurungwe Com Ld, N.	subtropical dry forest	loamy sand (poorly drained)	tree	excavation						
472	near Harare, N-E	subtropical dry forest	clay loam over gravel	tree	excavation						
473	C. Omay Com Ld, N.	subtropical dry forest	shallow loamy sand	tree	excavation						
474	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
475	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
476	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay, pooly	tree	excavation						
477	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
478	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
479	near Kitwe, N. Zambia	subtropical dry forest	clay	tree	excavation						
480	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	tree	excavation						
481	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
482	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	tree	excavation						
483	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
484	near Kitwe, N. Zambia	subtropical dry forest	sand	tree	excavation						
485	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
486	North province, W	tree savanna / subtropical	deep, medium-textured	tree	excavation						
487	Lup ane, W. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
488	near Harare, N-E	subtropical dry forest	clay loam over gravel	tree	excavation						
489	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
490	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay, with laterite at	tree	excavation						
491	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated karoo sands	tree	excavation						
492	Gokwe, N. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
493	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
494	near Kitwe, N. Zambia	subtropical dry forest	sand	tree	excavation						
495	near Kitwe, N. Zambia	subtropical dry forest	clay	tree	excavation						
496	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
497	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
498	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
499	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
500	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
501	Prairies of E. Nebraska	prairie	loess	herb	excavation						
502	Subclimax Prairies, near	prairie- chaparral	mellow loess	herb	excavation						
503	Côte d'Ivoire	W African humid	sandy, gravel/stone	small tree	soil pit (0.2x0.2m						
504	Côte d'Ivoire	W African humid	sandy, gravel/stone	small tree	soil pit (0.2x0.2m						
505	Lewiston, Nez Perce County,	semi-arid thrub-steppe	sand/silt loam	grass	soil pits, liCl tracer,						
506	Lewiston, Nez Perce County,	semi-arid thrub-steppe	sand/silt loam	grass	soil pits, liCl tracer,						
507	Lewiston, Nez Perce County,	semi-arid thrub-steppe	sand/silt loam	bunchgrass	soil pits, liCl tracer,						
508	Lewiston, Nez Perce County,	semi-arid thrub-steppe	sand/silt loam	grass	soil pits, liCl tracer,						
509	Victoria, S. Australia	managed pasture		grass	soil coring						
510	Victoria, S. Australia	managed pasture	clay loam	grass	soil coring						
511	Lewiston, Nez Perce County,	semi-arid thrub-steppe	sand/silt loam	grass	soil pits, liCl tracer,						
512	Hanford, SC Washington	shrub-steppe	Ritzville silt-loam	grass	soil coresto 1.6m						
513	Gem County, Idaho	semi-arid pasture	Brent silt loam, developed on an	bunchgrass	growthcloth bags						
514	Lewiston, Nez Perce County,	semi-arid thrub-steppe	sand/silt loam	bunchgrass	soil pits, liCl tracer,						
515	Hanford, SC Washington	semi-arid shrub-steppe	loamy sand on coarse sand	bunch grass	excavation						
516	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, low	bunch grass	trenchwall						
517	SE Washington, USA	temperate semi-desert	stony silt loam	grass		annual	47.7511	-120.7401	SiLo		
518	SE Washington, USA	temperate semi-desert	loamy sand over sand	grass		annual	46.242	-119.2	LoSa		
519	SE Washington, USA	temperate semi-desert	silt loam	grass		annual	46.242	-119.2	SiLo		
520	SE Washington, USA	temperate semi-desert	silt loam	grass		annual	46.242	-119.2	SiLo		
521	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	grass		annual	43.8207	-117.026	Sa		
522	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
523	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
524	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
525	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
526	Central Amazon, near	Tropical floodplain	sandy clay (clay55-88%)	tree	fallen						
527	Prairies of E. Nebraska	prairie	alluvial soil	bunch grass	excavation						
528	North province, W	tree savanna / subtropical	deep, medium-textured	shrub	excavation						
529	NE Ghana, Mole Reserve	tropical tree savanna	sandy loam, on loam, on clay	tree	excavation						
530	northern Transvaal,	tree savanna	sand, well drained	tree	excavation						
531	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated karoo sands	tree	excavation						
532	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	tree	excavation						
533	Lup ane, W. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
534	W coast Mexico, near	tropical deciduous	sandy loam, low O	tree	trenchexcavatio						
535	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
536	N Venezuela	tropical savanna	heavier soil, low macropores,	tree or shrub	excavation						
537	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	subshrub	excavation						
538	Colombian Amazon	tropical rainforest	loamy sand /Orteinic Podzol	tree	ingrowth+						
539	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
540	Aiuaba, Brazil	Caatinga (Savanna)	Acrisol	tree	trenchwall						
541	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	grass	excavation						
542	Sweedish Lapland	tundra		grass (rhizomatous)	excavation						
543										1	
544	southern Saskatchewan	Canadian Prairies	sand	sod-forming	trenchwall						
545	NC North Dokota	temperate steppe	deep dune sand	reed	hydraulicexcavatio						
546	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	grass	excavation						
547	Taklamakan desert, W.	arid desert	pure silt	shrub	excavation						
548	Central Tunisia	Saharian desert	sand	xerophytic shrub	excavation						
549	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
550										1	
551	South England,	heathland	dune sand	shrub	soil core sand blocks						
552		Alpine		shrub	excavation						
553	South England,	heathland	well-developed humus iron	shrub	soil cores						
554	South England,	heathland	dune sand	shrub	soil core sand blocks						
555	South England,	heathland	dune sand	shrub	soil core sand blocks						
556	South England,	heathland	dune sand	shrub	soil core sand blocks						
557	South England,	heathland	dune sand	shrub	soil core sand blocks						
558	South England,	heathland	dune sand	shrub	soil core sand blocks						
559	South England,	heathland	dune sand	shrub	soil core sand blocks						
560										1	
561	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
562	near Queimadas,	Caatinga (dry bush)		small tree	road cut						
563	British Somaliland	semi-arid desert	alluvial sand	herb	excavation						
564	S Ghana, near Kade, Agr Res	moist semi- desiduous	humus-10cm, poorly-drained	tree	soilmonoliths						
565	Belgium	temperate wetland	no profile, humus (0.1m)	grass	soil cores						
566	Barrow, N. costal Alaska	wet tundra		sedge	root obsbox (like						
567										1	
568	Sweedish Lapland	tundra		grass	excavation						
569										1	
570	southern Saskatchewan	Canadian Prairies	sand	sedge, sod forming	trenchwall						
571	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
572	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
573	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
574	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
575	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
576	southern Saskatchewan	Canadian Prairies	gravel subsoil	sedge, sod forming	trenchwall						
577	southern Saskatchewan	Canadian Prairies	loam	sedge, sod forming	trenchwall						
578	Colorado, USA		silt loam							1	
579	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	grass	trenchwall						
580	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	rhizomatous grass		perennial	43.8207	-117.026	Sa		
581	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	grass (rhizomatous)	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
582	Zailiisky Alatau Range,	dry steppe		rhizomatous herb	trench						
583	central Nevada	riparian medow	Aquiccryoboroll,	sedge	soil pit						
584	central Nevada	riparian medow	Haplocryoll	sedge	soil pit						
585	Central Nevada, US	desert reparian	aquiccryoborrols to	sedge grass, grass	minirhizotron						
586	Central Nevada, US	desert reparian	aquiccryoborolls	sedge grass, grass	minirhizotron						
587	Central Nevada, US	desert reparian	aquiccryoborolls	sedge grass, grass	minirhizotron						
588	N Sierra Nevada, near	riparian meadow		sedge	minirhizotron tube						
589	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	sedge	excavation						
590										1	
591											
592	Zailiisky Alatau Range,	dry steppe		rhizomatous sedge	trench						
593	Illinoise	temperate deciduous	brown silt loam	sedge	excavation						
594	S. Austria	temperate broadleaf		forb	excavation						
595	S. Austria	temperate broadleaf		forb	excavation						
596	S. Austria	temperate broadleaf		forb	excavation						
597	Sonoran Desert,	arid desert	adobe clay	perennial herb	excavation						
598	Bab, near Nitra, W	temperate forest	brown soil on carbonate loess	tree	soilmonolith						
599	in north of Caucasus,	Mediterrane an woodland		forb	excavation						
600	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
601	central Florida	subtropical scrub forest	well-drained, acid, sands,	tree	coring to1.5m,						
602	E. Nebraska	Prarie with planted and	Knox silt loam	tree	excavation						
603	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
604	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
605	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
606	Sahel, SW Niger	grass savanna	sandy (2-5mdeep)	herbs and grass	soilsamples						
607	Morogoro, E. Tanzania	subtropical dry forest	sandy loams, poor in Org and	legume tree	soil coringto 1m						
608	Sweedish Lapland	tundra		forb (forming	excavation						
609	Sweedish Lapland	tundra		drawrf shrub	excavation						
610	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
611	Guangdong Province,	subtropical moist forest	lateritic red earth rich in	tree	excavation + soil						
612										1	
613	E. Nebraska	Prarie with planted and	Sarpy very fine sandy loam	tree	excavation						
614	San Gabrial / Bernardino	Chaparral	litter, humus (0.08-0.15m) on	shrub	excavation						
615	California, USA	mediterranean sclerophyllous shrubland	clay loam on diorite	shrub		perennial	34.2	-117.76	ClLo		
616											
617	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
618	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
619	San Gabrial / Bernardino	Chaparral	sandy loam, on loose rock	shrub	excavation						
620	California, USA	mediterranean sclerophyllous shrubland	sandy loam over granodiorite	shrub		perennial	34.2	-117.76	SaLo		
621	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		
622	San Gabrial / Bernardino	Chaparral	loose coarse sand (0.15m),	shrub	excavation						
623	San Gabrial / Bernardino	Chaparral	either gravel terraces or	shrub	road cut						
624	Pepperdine University, Malibu, California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub		perennial	34.23	-118.423	Ro		
625	Pepperdine University, Malibu, California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub		perennial	34.23	-118.423	Ro		
626	San Gabrial / Bernardino	Chaparral	litter, humus (0.08-0.15m) on	shrub	excavation						
627	California, USA	mediterranean sclerophyllous shrubland	loam to clay loam on diorite	shrub		perennial	34.2	-117.76	ClLo		
628	Subclimax Prairies, near	prairie- chaparral	more adundance of	shrub	excavation						
629	Pepperdine University, Malibu, California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub		perennial	34.23	-118.423	Ro		
630	Pepperdine University, Malibu, California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub		perennial	34.23	-118.423	Ro		
631											

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
632											
633	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
634	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
635	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
636	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
637	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
638	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
639	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
640	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
641	S Ghana, near Kade, Agr Res	moist semi- desiduous	humus-10cm, well-drained	tree	soilmonoliths						
642	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
643	near Alice, S. Texas	savanna parkland	sandy loam soil 2m deep	small thorny shrub	1.5mcorning						
644	near Alice, S. Texas	savanna parkland	sandy loam over claypan	small thorny shrub	1.5mcorning						
645	Arizona	NR	NR	Tree	Personal observation					1	Y
646										1	
647	Namaqualand , South Africa		sandy	shrub	excavation						
648											
649	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
650	San Gabrial / Bernardino	Chaparral	sandy loam, on loose rock	shrub	excavation						
651	California, USA	mediterranean sclerophyllous shrubland	sandy loam over granodiorite	shrub		perennial	34.2	-117.76	SaLo		
652	Front Range Rockies, near	mountain forest	loose fine grey sand on	shrub	exavation						
653	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	shrub	exavation						
654	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	shrub	exavation						
655	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
656										1	
657	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
658	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
659	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
660	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
661	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
662	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
663	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
664	Nine-state, Hokkaido,	temperate broadleaf	humus loam	tree	excavation						
665	Central Portugal	Mediterrane an shrubland	schist lithossols	green-stem leaf-less shrub	excavation						
666	Death Valley, California, USA	subtropical semi-desert	sand to silt	prostrate forb		annual	36.5323	-116.9325	Si		
667	near Pike's Peak,	Forest community	1-2" humus on rich black	herb	excavation						
668	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
669	New Mexico	Arroyo	NR	Tree/Shrub	Excavation					1	N
670	north of Eurgenland,		black earth	forb	excavation						
671	southern Saskatchewan	Canadian Prairies	sand	subshrub	trenchwall						
672	SE Idaho, INEL	semi-arid shrub-steppe	sandy loam to clay; calcic	shrub	131I radiotracer						
673	North-Central Arizona	arid desert	sand, graval, hard clay, then	shrub	excavation						
674	Mono Lake, California	arid desert	2-3.6m dune sand on lake	shrub	soil pitsand cores						
675	Owen Valley, CA	arid desert	sandy	shrub	trenchwall + soil						
676	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	shrub	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
677	Great Basin, C Utah	arid desert	Sand (87% sand, 6% silt, 7% clay),	shrub	soil pits, inferred						
678	Great Basin, C Utah	arid desert	Sandy loam (59% sand, 29%	shrub	soil pits, inferred						
679	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
680	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
681	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
682	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
683	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
684	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
685	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
686	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
687	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
688											
689											
690											
691											
692											
693											
694	E of Idaho Falls, ID	semi-arid shrub-steppe	clayey silt	shrub	32P radiotracer						
695	E of Idaho Falls, ID	semi-arid shrub-steppe	aeolian sandy loam and loess	shrub	32P radiotracer						
696	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
697	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
698	S. Uruguay	temporate grassland	silty clay loam	herb	soil coring						
699	Central Portugal	Mediterrane an shrubland	humic cambissols	small shrub	excavation						
700	Central Portugal	Mediterrane an shrubland	schist lithossols	shrub	excavation						
701	Central Portugal	Mediterrane an shrubland	humic cambissols	small shrub	excavation						
702	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
703	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
704	Boise, Idaho	semi-arid shrub-steppe	Granitic clay, thin humus	forb / subshrub	trenchwall						
705	Podocarpus Nat Park, S	tropical montane	0.15m O, on >0.9m mineral	small tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
706	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	mid-high shrub	excavation						
707	Cascade Mt., N. Oregon	Mountain forest	deep pumice soils	semi-succulent herb	excavation						
708	Cascade Mountains, N Oregon	Mountain forest	deep pumice soils	herb		perennial	45.3033	-121.5124			
709	Podocarpus Nat Park, S	tropical elfin forest	0.3m O, on 0.4m mineral soil	small tree	excavation						
710	Zailiisky Alatau Range,	dry steppe		grass	trench						
711	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	small tree	deep wells (shafts)						
712	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
713	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
714	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	tall shrub	excavation						
715	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	forb/herb		annual	44.16	-122.34	Lo		
716	Sasame Riv, N. Gokwe, N.	subtropical dry forest	clay loam (alluvium)	small tree	excavation						
717	Dagamela, C. Nkayi, W.	subtropical dry forest	sandy clay	small tree	excavation						
718	Dagamela, C. Nkayi, W.	subtropical dry forest	sandy loam	small tree	excavation						
719	near West Nicholson, S.	subtropical dry forest	coarse granite sand	small tree	excavation						
720	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated sandy loam	small tree	excavation						
721	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	small tree	excavation						
722	near West Nicholson, S.	subtropical dry forest	coarse granite sand, over	small tree	excavation						
723	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
724	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated sands (rive	small tree	excavation						
725	Sasame Riv, N. Gokwe, N.	subtropical dry forest	coarse sand	shrub	excavation						
726	N. Dande Com Ld, N	subtropical dry forest	sand	small tree	excavation						
727	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
728	Sasame Riv, N. Gokwe, N.	subtropical dry forest	sand, coarse sand	small tree	excavation						
729	N. Dande Com Ld, N	subtropical dry forest	coarse sand	small tree	excavation						
730	NW Hwange, W. Zimbabwe	subtropical dry forest	vertisol	shrub	excavation						
731	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated karoo sands	shrub	excavation						
732	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated sands (rive	tree	excavation						
733	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	tree	excavation						
734	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	tree	excavation						
735	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	tree	excavation						
736	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated karoo sands	tree	excavation						
737	near West Nicholson, S.	subtropical dry forest	coarse granite sand	small tree	excavation						
738	near West Nicholson, S.	subtropical dry forest	coarse granite sand, over	small tree	excavation						
739	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	small tree	excavation						
740	near Uis Myn, Namibia	semiarid desert		shrub	excavation						
741	N. Dande Com Ld, N	subtropical dry forest	sand	tree	excavation						
742	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (suckering)	excavation						
743	La Pampa Province,	dry steppe	shallow soil, medium to	shrub	trenchwall						
744	Sonoran Desert,	arid desert	sand, adobe	shrub	excavation						
745	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	forb/herb		annual	44.16	-122.34	Lo		
746	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
747	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
748	E of Idaho Falls, ID	semi-arid shrub-steppe	clayey silt	forb	32P radiotracer						
749	Israel, Negev desert, duns	arid desert	dune sand	spiny shrub (not saline	excavation						
750	E. Nebraska	Prarie with planted and	Cass fine sandy loam	tree	excavation						
751										1	
752	near Peru, E. Nebraska	chaparral	loess	mediem to large shrub	excavation						
753	near Roblin, Manitoba, CA	Priarie posholes	subxeric silty clay Orthic Gray	shrub	trenchwall						
754										0	
755	Zailiisky Alatau Range,	dry steppe		shrub	trench						
756	Sonoran Desert,	arid desert	adobe clay	shrub	excavation						
757											
758	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	herb	deep wells (shafts)						
759	E. Nebraska	Prarie with planted and	Carrington siltloam	tree	excavation						
760	Central Portugal	Mediterrane an shrubland	humic cambissols	small tree	excavation						
761	Kazakhstan, northern	dry steppe	clayeychernozem,	tree	excavation						
762	Kazakhstan, northern	dry steppe	clayeychernozem,	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
763	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	forb		annual	44.16	-122.34	Lo		
764	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb	trenchwall						
765										1	
766	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
767	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
768	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
769	North-Central Arizona	arid desert	sand	herb	excavation						
770	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
771	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
772	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
773	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
774	Death Valley, California, USA	subtropical semi-desert	sand to silt	prostrate forb		annual	36.5323	-116.9325	Si		
775	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
776	north of Nairobi,	plantation	loam, deep, free-draining latosol	tree	soil coring						
777	north of Nairobi,	plantation	loam, deep, free-draining latosol	tree	soil coring						
778	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
779	Kin Ale, Kanya	grass savanna	sandy loam, clay, high-perm	tree	excavation						
780	N Venezuela	tropical savanna	high macropores,	tree or shrub	excavation						
781	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
782	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	small shrub	excavation						
783	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb / subshrub	excavation						
784	central Georgia, US	managed pasture	sandy loam	grass	soil coring						
785	Zailiisky Alatau Range,	dry steppe		rhizomatous forb	trench						
786	Central Portugal	Mediterrane an shrubland	schist lithossols	shrub	excavation						
787	Central Portugal	Mediterrane an shrubland	schist lithossols	shrub	excavation						
788	Victoria, S. Australia	managed pasture		C_3 bunch grass	soil coring						
789	Victoria, S. Australia	managed pasture	clay loam	C_3 bunch grass	soil coring						
790		Marsh	peat soil	forb (an orchid)	excavation						
791	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
792	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
793	North-Central Arizona	arid desert	sand	shrub	excavation						
794											
795	Central Portugal	Mediterrane an shrubland	humic cambissols	shrub	excavation						
796										1	
797	Chihuahuan Desert, New	xeric shrubland	fine loamy	grass	excavation						
798	Paragomin As, Para, Brazil	Tropical rainforest	Oxisol: 70–80% clay, 10–20%	liana	excavation						
799										1	
800	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
801	Northern Sahara,	arid desert	stony desert with little soil	herb	excavation						
802	near Kitwe, N. Zambia	subtropical dry forest	sand imperfectly drained	tree	excavation						
803	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
804	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	tree	excavation						
805	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	small tree	excavation						
806	French Guiana	Tropical rainforest	clayey-silty alterite with	tree	O-18 andsoil pit						
807	French Guiana	Tropical rainforest	reddish-brown sandy-loamy to	tree	O-18 andsoil pit						
808	Combu Isl, near Belem,	lowland tropical	sandy clay	tree	soil pit +coring						
809	Combu Isl, near Belem,	lowland tropical	heavier (more clay)	tree	soil pit +coring						
810	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
811	near Kade, S Ghana	moist tropical	silty clay, silty-sandy clay,	tree	soil coring						
812	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
813	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	small tree	excavation						
814	San Gabrial / Bernardino	Chaparral	coarse, loose gravel	subshrub	excavation						
815	SE Chin A, Gutian	subtropic evergreen		rhizomatous forb	cutting						
816	Lup ane, W. Zimbabwe	subtropical dry forest	kalahari sand	shrub	excavation						
817	Sabah, Malaysian	lowland tropical rain	Acrisols poor in nutrients, well	tree	soil pitsand core						
818	Kampong Thom	tropical evergreen	loamy sand, on sandy-caly loam,	tree	trenchwall						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
819	Khon Kaen, NE Tailand	tropical savanna /	sand layer over clay layer over	tree	deep wellboring						
820	Khon Kaen, NE Tailand	tropical savanna /	sand layer over clay layer over	tree	deep wellboring						
821	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
822	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
823	Nebraska	Alluvial flood-plain	Alluvial flood-plain	Herbaceous perennial: Clonal graminoid	Excavation					1	
824											
825	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
826	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	shrub	excavation						
827	Medicine Bowel Range,	alpine tundra	stony scree	leaf-succulent	exavation						
828	Zailiisky Alatau Range,	dry steppe		rhizomatous herb	trench						
829	Barrow, N. costal Alaska	wet tundra		grass	root obsbox (like						
830	Sonoran Desert,	arid desert	adobe clay, amlpais (from	herb	excavation						
831	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	succulent		perennial	35.011	-115.4734	Sa		
832	Deep Canyon Desert Research Center, California	subtropical desert	gravely, sandy loam	succulent		perennial	33.38	-116.24	SaLo		
833	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	grass	deep wells (shafts)						
834										0	
835	Pamiro-Alay, W Tajikistan	dry steppe		small tree	soilmonolith						
836	N. and S. Sumatra,	near Jambi, S. Sumatra	deeply weathered SL-	palm	soil coringt 5m						
837	East Kalemantan,	near Kenangan,	deeply weathered SL-	palm	soil coringt 5m						
838										1	
839	Arizona	Stream bank		Herbaceous perennial: Clonal graminoid	Excavation					1	
840	N. Illinoise near Lake	temperate riparian	black muck or partially	grass	excavation						
841	New York	Wetland	NR	Herbaceous perennial: Clonal graminoid	Excavation					1	
842	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
843	Kansas	Mixed prairie	silty clay loam		Excavation					0	
844	Gem County, Idaho	semi-arid pasture	Brent silt loam, developed on an	bunchgrass	growthcloth bags						
845											
846	SE Idaho, INEL	semi-arid shrub-steppe	sandy loam to clay; calcic	grass	131I radiotracer						
847	E of Idaho Falls, ID	semi-arid shrub-steppe	clayey silt	grass	32P radiotracer						
848	SE Idaho, INEL	semi-arid shrub-steppe	sandy loam to clay; calcic	grass	131I radiotracer						
849										1	
850	near Pike's Peak,	Half Graval- slide	coarse, rocky soil, more	grass	excavation						
851	Namaqualand , South Africa		sandy	shrub	excavation						
852										1	
853	Sonoran Desert,	arid desert	adobe clay, amlpais (from	shrub	excavation						
854										1	
855	Sarawak, Malaysia	secondary growth	Sandy loam	tree	excavation						
856	Central African	semi- deciduous	Ferralsols developed on	emergent tree	trenchwall						
857	Central African	semi- deciduous	Arenosols developed on	emergent tree	trenchwall						
858	Central African	semi- deciduous	Arenosols developed on	emergent tree	trenchwall, plus						
859	Central African	semi- deciduous	Ferralsols developed on	emergent tree	trenchwall, plus						
860	Sasame Riv, N. Gokwe, N.	subtropical dry forest	coarse sand	tree	excavation						
861	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
862	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
863	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
864	French Guiana	Tropical rainforest	clayey-silty alterite with	tree	O-18 andsoil pit						
865	French Guiana	Tropical rainforest	reddish-brown sandy-loamy to	tree	O-18 andsoil pit						
866	Central Tunisia	Saharian desert	sand	xerophytic shrub	excavation						
867										1	
868	Mojave desert,	Arid desert		shrub	excavation						
869	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
870	E California	temperate desert	rocky sandy loam	perennial semi-shrub						1	
871	Chihuahuan Desert, New	xeric shrubland	gypsum soil	shrub	excavation						
872	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
873	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	forb		perennial	44.16	-122.34	Lo		
874	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	forb		annual	44.16	-122.34	Lo		
875	southern Saskatchewan	Canadian Prairies		forb	trenchwall						
876	NC North Dokota	temperate steppe	deep dune sand	rush	hydraulicexcavatio						
877	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	grass	excavation						
878											
879	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
880	Pamiro-Alay, W Tajikistan	dry steppe		grass	soilmonolith						
881	Central Portugal	Mediterrane an shrubland	schist lithossols	shrub	excavation						
882	Central Portugal	Mediterrane an shrubland	humic cambissols	shrub	excavation						
883	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	mid-high shrub	excavation						
884	Central Portugal	Mediterrane an shrubland	humic cambissols	shrub	excavation						
885	SW France	Mediterran pine	eaolian sand /Entic to Densic	shrub	coring						
886	Central Portugal	Mediterrane an shrubland	schist lithossols	shrub	excavation						
887										1	
888	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
889	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
890	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
891	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
892	California			Shrub	Excavation					1	Y
893	E California, USA	temperate desert	clay loam, water table at 1 m	shrub		perennial	37.16666667	-118.2833333	ClLo		
894										1	
895	E California, USA	temperate desert	rocky sandy loam	shrub		perennial	37.16666667	-118.2833333	SaLo		
896	Medicine Bowel Range,	alpine tundra	stony scree	forb, rhizomous	exavation						
897	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
898	Medicine Bowel Range,	alpine tundra	stony scree	forb, rhizomous	exavation						
899	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
900	San Gabrial / Bernardino	Chaparral	coarse, loose gravel	subshrub	excavation						
901	California, USA	mediterranean sclerophyllous shrubland	coarse, loose gravel	semi-shrub		perennial	34.2	-117.76	Sa		
902	Mojave Desert,		granite alluvium	shrub	excavation						
903	San Gabrial / Bernardino	Chaparral	coarse, loose gravel	subshrub	excavation						
904	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
905	California, USA	mediterranean sclerophyllous shrubland	coarse, loose gravel	semi-shrub		perennial	34.2	-117.76	Sa		
906	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
907	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, very	forb / subshrub	trenchwall						
908	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
909	SE Washington, USA	palouse prairie	silt loam	suffrutescent/semi-		perennial	46.5	-117.1	SiLo		
910	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	suffrutescent/semi-		perennial	43.8207	-117.026	Sa		
911											
912	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
913	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	shrub	excavation						
914	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb / subshrub	excavation						
915	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	semi-shrub		perennial	46.6475	-119.5986	LoSa		
916	Barrow, N. costal Alaska	wet tundra		grass	root obsbox (like						
917	N. Siberia, Russia	Tundra (tussock-		tussock-sedge	soil coring						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
918	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
919	N California, USA	mediterranean grassland	gravely clay loam	forb		annual			ClLo		
920	Judaean Desert, Israel	arid desert		forb							
921	Kleve, Germany,	temperate forest	deep alluvium	thorny forb	excavation						
922	Cascade Mt., N. Oregon	Mountain forest	deep pumice soils	herb, with storage	excavation						
923	Cascade Mountains, N Oregon	Mountain forest	deep pumice soils	herb		perennial	45.3033	-121.5124			
924	near Darwin, Australia	tropical Eucalypt	infertile loamy sand	tree (legume)	trench						
925	Lup ane, W. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
926	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated sands	tree	excavation						
927	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
928	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
929	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	tree	excavation						
930	near Kitwe, N. Zambia	subtropical dry forest	sand imperfectly drained	tree	excavation						
931	near Kitwe, N. Zambia	subtropical dry forest	sand imperfectly drained	tree	excavation						
932	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
933	Veracruz, Mexico (La	seasonal	dune sand, with higher clay	legume tree, tree,	soil coringto caliche						
934	Veracruz, Mexico (La	seasonal tropical	dune sand	legume tree, tree,	soil coringto 2m						
935	N. of Poite Noire, Congo	plantation	deep Ferralic Arenosols, 85%	tree	trech wall						
936	south-west Western	Mediterrane an	0.5m gravelly sandy on clay at	tree	soil drying inferred						
937	Victoria, Australia	subtropical dry forest		tree	exposureby bank						
938	Pampas, Argentin A	temperate steppe	silty loam	tree	soil coring						
939										0	
940	Zululand, South Africa	subtropical dry forest	deep sand	tree	excavation						
941	Zululand, South Africa	subtropical dry forest	deep sand	tree	excavation						
942	SW Western Australia,	Mediterrane an wood land		tree	exposurein cave						
943	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
944	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
945	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
946	Ventura, CA	Woodland	Loam		Field verification					0	
947	SW Australia, near Perth	Mediterra woodland	deep sand on gravel	tree	H isotope, excavatio						
948	Itatinga, São Paulo, SE	plantation	sandy, deep Ferralsols (>10	tree	soil cores+						
949	Itatinga, São Paulo, SE	plantation	sandy, deep Ferralsols (>10	tree	soil cores+						
950	S~ao Paulo State, SE	plantation	deep Ferralsolson Cretaceous	tree							
951	Mpumalanga, N. South	plantation	53-79% sand, ferralsols	tree	unclear						
952	Mpumalanga, N. South	plantation	56-93% sand, ferralsols	tree	unclear						
953	Itatinga, São Paulo, SE	plantation	clayey, deep Ferralsols (>10	tree	trenchwall + soil						
954	Itatinga, São Paulo, SE	plantation	sandy, deep Ferralsols (>10	tree	trenchwall + soil						
955	south-west Western	Mediterrane an	0.25-0.6m sandy ferricrete gravel,	tree	soil drying inferred						
956	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
957	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
958	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
959	south-west Western	Mediterrane an	0.15m clay sand on 0.5-0.7m	tree	soil drying inferred						
960	south-west Western	Mediterrane an	0.25-0.6m sandy ferricrete gravel,	tree	soil drying inferred						
961	south-west Western	Mediterrane an	0.25-0.6m sandy ferricrete gravel,	tree	soil drying inferred						
962	south-west Western	Mediterrane an	1m gravelly sandy loam, on	tree	soil drying inferred						
963	Jarrahdale, W.A.,	Mediterra forest	gavelly sand (0.3m), on	tree	excavation + coring						
964	Jarrahdale, W.A.,	Mediterra forest	gravely sand (1.3m), on	tree	excavation + coring						
965	Near Jarrahdale, W	Mediterrane an dry forest	gravely sand (1.2m), laterite (-	tree	quarrywall						
966	Coastal Congo	plantation on ploughed	deep sandy (85%) arenosols,	tree	trenchwall						
967	near Newdegate	Mediterrane an dry forest	sand/gravel, mottled, hard	tree	drill core						
968	south-west Western	Mediterrane an	uniform sand over silcrete	tree	soil drying inferred						
969	south-west Western	Mediterrane an	1m gravelly sandy loam, on	tree	soil drying inferred						
970	south-west Western	Mediterrane an	uniform sand over silcrete	tree	soil drying inferred						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
971	Queens Land, NE Australia		red loamy A, light-medium	tree	excavation						
972	Queens Land, NE Australia		uniform medium loam or	tree	excavation						
973	Queens Land, NE Australia		sand to clayloam on yellow	tree	excavation						
974	north of Nairobi,	plantation	loam, deep, free-draining latosol	tree	soil coring						
975	Natal, E. South Africa	subtropical dry forest	soils are poor, shallow and	tree	deep wellbores						
976	NE-Australia									0	
977	Morogoro, E. Tanzania	subtropical dry forest	sandy loams, poor in Org and	tree	soil coringto 1m						
978	NE India	plantation	alluvial sandy loam, with	tree	hand-dugwell						
979	near Darwin, Australia	tropical Eucalypt	infertile loamy sand	tree	trench						
980	near Darwin, Australia	broadleaved woody	sandy loams derived from	tree	soil pit to 0.6m						
981	N. Northern Territory,	tropical dry forest	gravely-sandy, underlain by	tree	excavation						
982	North Stradbroke	subtropical eucalypt	tan-coloured sands of ~40k	tree	soil pit +samples						
983	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
984	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	dwarf shrub	excavation						
985	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
986	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	herb	excavation						
987	British Somaliland	semi-arid desert	alluvial sand	herb	excavation						
988	Namaqualand , South Africa		sandy	shrub	excavation						
989	Southern Kazakhstan	xeric shrubland	quick sand (dune??)	shrub	excavation						
990	Southern Kazakhstan	xeric shrubland	road metal soil	shrub	excavation						
991	Southern Kazakhstan	xeric shrubland	meadow Sierozem	shrub	excavation						
992	Southern Kazakhstan	xeric shrubland	loamy Sierozem	shrub	excavation						
993	Brunei, Andulau	Tropical rainfores	2-15cm O, clay-sand, clay	small tree	excavation						
994	Combu Isl, near Belem,	lowland tropical	lighter (sandier)	tree	soil pit +coring						
995	N of Manaus, Brazil	evergreen tropical	clay rich Oxisolson plateau,	tree	excationto 1m						
996										1	
997	Sarawak, Malaysia	secondary growth	Sandy loam	tree	excavation						
998	central Japan	temperate broadleaf	moderately water-retentive	tree	unclear						
999	central Japan	temperate broadleaf	moderately water-retentive	tree	unclear						
1000	central Japan	temperate broadleaf	moderately water-retentive	tree	unclear						
1001	Cumberland Plateau, E.	temperate mixed forest	well-drained stony sandy	tree	soil pits						
1002	NW Germany	temperate deciduous	7.2cm O, on sandy, acidic,	tree	soil cores						
1003	Leinefelde, C. Germany	temperate deciduous	Stagnic to Haplic Luvisol (O rich,	tree	soil coringto 30cm						
1004	near Wilhelmsburg	temperate broad-leaf	4cm O, clayloam, 40-60%	tree	trench profile						
1005	near Wilhelmsburg	temperate broad-leaf	4cm O, nutrient rich Cambisol	tree	trench profile						
1006	Burkin A Faso, west Africa	tree savanna	1m rich sandy Soil on compact	tree	excavation						
1007	Burkin A Faso, west Africa	tree savanna	deep sandy soil	tree	excavation						
1008	Burkin A Faso, west Africa	tree savanna, Sahel	clay sand, onclay silt, on silt,	tree	trenchwall						
1009	Chilanga, S. Zambia	subtropical dry forest	clay	tree	excavation						
1010	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
1011	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
1012	Deep Canyon Desert Research Center, California	subtropical desert	sand	succulent		perennial	33.38	-116.24	Sa		
1013	Front Range Rockies, near	mountain forest	loose fine grey sand on	bunch grass	exavation						
1014	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	bunch grass	exavation						
1015	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	bunch grass	exavation						
1016	North Carolin A	temperate mixed forest	loamy sand, mottled grey C	C3 bunchgrass	soil coringto 1.65m						
1017	North Carolin A	temperate mixed forest	mottled fine sandy loam	C3 bunchgrass	soil coringto 1.65m						
1018	North Carolin A	temperate mixed forest	clay loam	C3 bunchgrass	soil coringto 1.65m						
1019	S. Uruguay	temporate grassland	silty clay loam	grass	soil coring						
1020	Victoria, S. Australia	managed pasture		C_3 bunch grass	soil coring						
1021	Victoria, S. Australia	managed pasture	clay loam	C_3 bunch grass	soil coring						
1022	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, fair	grass	trenchwall						
1023	SE Washington, USA	palouse prairie	silt loam	cespitose grass		perennial	46.5	-117.1	SiLo		
1024	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	cespitose grass		perennial	43.8207	-117.026	Sa		
1025	Sweedish Lapland	tundra		tufted grass	excavation						
1026	Sweedish Lapland	tundra		tufted grass	excavation						
1027	near Pullman, SE	High Prairie	fine silt-loam, can be very	bunch grass	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1028	Patagonia	Festuca grassland	Alluvial &Moraine; +0.05-	bunch grass, cushion	excavation						
1029	NW Italy, foothill of	temperate broadleaf	sand/silt	grass	excavation?						
1030	NW Italy, foothill of	temperate broadleaf	sand/gravel	grass	excavation?						
1031	NW Italy, foothill of	temperate broadleaf	silt/sand	grass	excavation?						
1032	Marin County, N-C	Mediterrane an grassland	sandy loam, sandstone/shale	bunch grass	soil coring						
1033	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1034	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1035	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1036	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1037	southern Saskatchewan	Canadian Prairies	gravel subsoil	bunch grass	trenchwall						
1038	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
1039	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
1040	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
1041	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
1042	N Venezuela	seasonally flooded	poorly drained mixture of clay	liana	excavation						
1043	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
1044	Natal, E. South Africa	subtropical dry forest	Redis - brown sandy soils	tree	deep wellbores						
1045	Chihuahuan Desert, New	xeric shrubland	loamy, with gravel-stone	shrub	excavation						
1046	Chihuahuan Desert, New	xeric shrubland	fine sandy loamy	shrub	excavation						
1047	Chihuahuan Desert, New	xeric shrubland	fine silt	shrub	excavation						
1048	Chihuahuan Desert, New	xeric shrubland	fine loamy	shrub	excavation						
1049	Chihuahuan Desert, New	xeric shrubland	fine loamy	shrub	excavation						
1050	Chihuahuan Desert, New	xeric shrubland	fine loamy	shrub	excavation						
1051	Chihuahuan Desert, New	xeric shrubland	fine loamy	shrub	excavation						
1052	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	shrub	excavation						
1053	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	shrub	excavation						
1054										1	
1055	near Tucson, AZ	Arid desert		shrub	exavation						
1056	Southern California	NW Sonoran Desert		xerophytic shrub	excavation						
1057										1	
1058											
1059										1	
1060	North-Central Arizona	arid desert	sand	herb	excavation						
1061	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	herb	excavation						
1062	near Cincinnati,	temperate deciduous	silty-clay colluvium	tree	excavation + trench						
1063	near Cincinnati,	temperate deciduous	silty-clay colluvium	tree	excavation						
1064	E. Nebraska	Prarie with planted and	Knox silt loam	tree	excavation						
1065										1	
1066	E. Nebraska	Prarie with planted and	Carrington silty clay loam	tree	excavation						
1067	E. Nebraska	Prarie with planted and	Cass loamy sand	tree	excavation						
1068	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
1069	Arizona			Tree	Personal observation					1	Y
1070	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1071	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (long rhizomes)	excavation						
1072	Chihuahuan Desert, New	xeric shrubland	gypsum soil	herb	excavation						
1073			between blackearth and brown	forb	excavation						
1074	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
1075	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	herb	excavation						
1076	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1077	SE Washington, USA	palouse prairie	silt loam	forb		annual/perennial	46.5	-117.1	SiLo		
1078	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
1079	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	herb	excavation						
1080	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	herb	excavation						
1081	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1082	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1083	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
1084	Prairies of E. Nebraska	prairie	loess	herb	excavation						
1085	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
1086	Podocarpus Nat Park, S	tropical montane	0.15m O, on >0.9m mineral	small tree	excavation						
1087	35km S. of Brasilia, Brazil	Cerrado (grass/tree	clayey redlatossol (Oxisol)	grasses	soil coring+ deep						
1088	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
1089	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
1090	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	shrub	excavation						
1091	Hanford, SC Washington	semi-arid shrub-steppe	silty loam	shrub	soil coring						
1092	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	semi-shrub		perennial	46.6475	-119.5986	LoSa		
1093	SE Washington, USA	temperate semi-desert	silt loam	semi-shrub		perennial	46.242	-119.2	SiLo		
1094	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
1095	Nyabeda, western	grass savanna	very fine, kaolinitic, 73%	tree	trenchwall to						
1096	near West Nicholson, S.	subtropical dry forest	coarse granite sand	small tree	excavation						
1097	Prairies of E. Nebraska	prairie	loess	herb	excavation						
1098	Nebraska									0	
1099										1	
1100	North province, W	tree savanna / subtropical	deep, medium-textured	tree	excavation						
1101	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	tree	excavation						
1102	Sahel, SW Niger	grass savanna	sandy (2-5mdeep)	shrub	soilsamples						
1103	Cote d'Ivoire, wetern Africa	tree savanna	sandy, tropical ferrugineous	shrubs	soil cores						
1104	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
1105	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
1106	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
1107	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
1108	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
1109	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
1110	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	suffrutescent forb		perennial	35.011	-115.4734	Sa		
1111	N-central Colorado,	temperate steppe	sandy clay loam, 67% sand, 13%	sub shrub	excavation + soil						
1112	N-central Colorado,	temperate steppe	sandy loam, 79% sand, 10% silt	sub shrub	excavation + soil						
1113	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	half shrub	excavation						
1114	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
1115	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
1116	Pamiro-Alay, W Tajikistan	dry steppe		shrub	soilmonolith						
1117	Xin Jiang province,	arid desert	dune sand	large shrub C4	O18isotope						
1118	southern periphery	xeric shrubland	sandy (85% sand)	small tree	excavation						
1119	southern periphery	xeric shrubland	heavier (23% sand)	small tree	excavation						
1120	Inner Mongolia,	desert oasis	sand (90%), silt (6%), clay (4%)	shrub	trenchwall						
1121	Inner Mongolia,	desert oasis	sand (90%), silt (6%), clay (4%)	shrub	trenchwall						
1122	Southern Kazakhstan	xeric shrubland	half-fixed hillock sand	small tree	excavation						
1123	Southern Kazakhstan	xeric shrubland	alluvial meadow chestnut soil	small tree	excavation						
1124	Southern Kazakhstan	xeric shrubland	loamy-sandy chestnut soil	small tree	excavation						
1125	Northern Sahara,	arid desert	fine sand, then hard layer, then	shrub	excavation						
1126	Xin Jiang province,	arid desert	dune sand	large shrub C4	O18isotope						
1127	Northern Sahara,	arid desert		shrub	excavation						
1128	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
1129	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
1130	Judaean Desert, Israel	arid desert		shrub							
1131											
1132	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1133	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
1134	Southern Manitoba,	Canadian Prairie	Sandy clay loam	herb	trench						
1135	Southern Manitoba,	Canadian Prairie	clay loam	herb	trench						
1136	Prairies of E. Nebraska	prairie	loess	herb	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1137	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
1138	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	herb	excavation						
1139											
1140	Judaean Desert, Israel	arid desert		shrub							
1141	Northern Sahara,	arid desert	fine sand, then hard layer, then	shrub	excavation						
1142	Central Tunisia	Saharian desert	sand	xerophytic shrub	excavation						
1143										1	
1144	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	cespitose grass		perennial	46.6475	-119.5986	LoSa		
1145	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	cespitose grass		perennial	46.6475	-119.5986	LoSa		
1146	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	cespitose grass		perennial	46.6475	-119.5986	LoSa		
1147	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	cespitose grass		perennial	46.6475	-119.5986	LoSa		
1148	California, USA	mediterranean sclerophyllous shrubland	sandy loam over decomposed granite	shrub		perennial	36.7783	-119.4179	SaLo		
1149	California, USA	mediterranean sclerophyllous shrubland	clay loam on diorite	shrub		perennial	34.2	-117.76	ClLo		
1150											
1151										1	
1152	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
1153	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1154	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb	trenchwall						
1155	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1156	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
1157	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	forb		perennial	43.8207	-117.026	Sa		
1158	Chihuahuan desert, N-C	arid desert	clay loam (0.25m) on	tussock grass	trenchwall						
1159	Mojave Desert,		granite alluvium>30 deep	clumping grass	excavation						
1160	Alma-Ata, SE Kazakhstan	dry steppe	dark chestnut leached soil with	rhizomatous, shrub	excavation						
1161	SW South Africa	xeric shrubland,	sandy loam over loose bedrocks	shrub	excavation						
1162	Belgium	temperate wetland	no profile, humus (0.1m)	grass	soil cores						
1163	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1164										1	
1165	Australia (NSW)	Pasture	NR		Excavation					0	
1166	Ain Sefra, NW Algeria	arid desert, Sahara	dune sand	grass	excavation						
1167	northern Kyoto City,	wetland	peat	shrub	excavation for						
1168										1	
1169	near Kitwe, N. Zambia	subtropical dry forest	sand imperfectly drained, shallow	small tree	excavation						
1170											
1171	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
1172	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
1173	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
1174	Cote d'Ivoire, wetern Africa	tree savanna	sandy, tropical ferrugineous	bunch grass	soil cores						
1175	Côte d'Ivoire	W African humid	sandy, gravel/stone	tuft-grass, C4	soil pit (0.2x0.2m						
1176	Côte d'Ivoire	W African humid	sandy, gravel/stone	tuft-grass, C4	soil pit (0.2x0.2m						
1177	Zailiisky Alatau Range,	dry steppe		forb	trench						
1178										1	
1179	northern Kyoto City,	wetland	peat	shrub or small tree	excavation for						
1180	N. and S. Sumatra,	near Jambi, S. Sumatra	deeply weathered SL-	rhizomatous grass	coringt 3m						
1181	East Kalemantan,	near Kenangan,	deeply weathered SL-	rhizomatous grass	soil coringt 3m						
1182	North-Central Arizona	arid desert	sand	small shrub	excavation						
1183	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	herb	excavation						
1184	northern Kyoto City,	wetland	peat	herb	excavation for						
1185	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1186	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1187	northern Kyoto City,	wetland	peat	herb	excavation for						
1188	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	grass (graminoid)	excavation						
1189	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
1190	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
1191	near Kitwe, N. Zambia	subtropical dry forest	sand imperfectly drained	tree	excavation						
1192	near Kitwe, N. Zambia	subtropical dry forest	clay	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1193	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
1194										1	
1195											
1196	Arizona	Desert grassland	NR		Excavation					0	
1197	Kamiesberg, N Cape, South	woody scrub, classified as		forb	excavation						
1198	Chihuahuan Desert, New	xeric shrubland	fine silty, apaleosol at 3.2m	herb	excavation						
1199										1	
1200	Brunei, Andulau	Tropical rainfores	2-15cm O, clay-sand, clay	shrub	excavation						
1201	Patancheru, S.C. India	subtropical dry forest	sandy clay loam to clay, gravel	shrub /small tree	soilsampling						
1202										1	
1203	Ventura, CA	Riparian	Loam		Field verification					1	
1204										1	
1205											
1206	E. Nebraska	Prarie with planted and	Cass silty clayloam	tree	excavation						
1207	S France, Restinclières	Mediterrane an woodland	silty clay (25 % clay 60 % silt)	tree	minirhizotron						
1208	N. of Montpellier,	subhumid Mediterrane	silty deep alluvial fluvisols,	tree	trenchwall to 4m						
1209	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
1210	C. Omay Com Ld, N.	subtropical dry forest	shallow loamy sand	tree	excavation						
1211	Gokwe, N. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
1212	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay, poorly	tree	excavation						
1213	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
1214	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
1215	near Kitwe, N. Zambia	subtropical dry forest	clay	tree	excavation						
1216	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
1217										1	
1218	Arizona	Stream bank		Herbaceous perennial: Clonal graminoid	Excavation					1	
1219										1	
1220										1	
1221											
1222										1	
1223										1	
1224										1	
1225										1	
1226										1	
1227										1	
1228	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
1229	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
1230	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
1231	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	small tree	excavation						
1232	Central Hungary,	temperate mixed forest	sand	tree	excavation						
1233	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	shrub	excavation						
1234	Almeria, S coast of Spain	Dry Mediterrane	dune sand	tree	coring						
1235											
1236	near Cincinnati,	temperate deciduous	silty-clay colluvium	tree	excavation + trench						
1237	Pamiro-Alay, W Tajikistan	dry steppe		tree	soilmonolith						
1238	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	shrub	excavation						
1239	Zailiisky Alatau Range,	dry steppe		shrub to small tree	trench						
1240	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	small tree	excavation						
1241	E. Nebraska	Prarie with planted and	Cass sandy loam	tree	excavation						
1242	E. Nebraska	Prarie with planted and	Waukesha fine sandy loam	tree	excavation						
1243	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
1244										1	

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1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1245	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	grass	excavation						
1246	Death Valley, California, USA	subtropical semi-desert	sand to silt	forb		annual	36.5323	-116.9325	Si		
1247	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (rhizomes)	excavation						
1248	Southern Kazakhstan	xeric shrubland	meadow Sierozem	subshrub	excavation						
1249	Takalamakan, W. Chin A	desert	pure silt	herb	in-growthtubes						
1250	Xin Jiang Uygur, NW	xeric shrubland	chloride-sulfate saline soi	C3 grass	soilsample						
1251	Nine-state, Hokkaido,	temperate broadleaf	humus loam	tree	excavation						
1252	near West Nicholson, S.	subtropical dry forest	coarse granite sand	tree	excavation						
1253	near Nam Tso lake, central	alpine meadow		sedge	unclear						
1254	Southern Kazakhstan	xeric shrubland	light chestnut calcareous soil	leaf succulent	excavation						
1255	Aosta valley, Italy	mountain forest	haplic-phaeozom (rich	subshrub	excavation						
1256	Pannonic area of NW of	mountain forest	loess and molasse	subshrub	excavation						
1257	Chihuahuan Desert, New	xeric shrubland	fine silt	shrub	excavation						
1258	Chihuahuan Desert, New	xeric shrubland	fine silt	shrub	excavation						
1259	New Mexico	Alluvial fan toeslope	Alluvial fan toeslope		Excavation					1	
1260	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1261	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1262	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1263	southern Saskatchewan	Canadian Prairies	sand	bunch grass	trenchwall						
1264	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1265	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1266	southern Saskatchewan	Canadian Prairies	gravel subsoil	bunch grass	trenchwall						
1267	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
1268	near Pullman, SE	High Prairie	fine silt-loam, can be very	bunch grass	excavation						
1269	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
1270	SE Washington, USA	palouse prairie	silt loam	cespitose grass		perennial	46.5	-117.1	SiLo		
1271	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	shrub	excavation						
1272	Mojave desert,	Arid desert		shrub	excavation						
1273	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
1274	Prairies of E. Nebraska	prairie	loess	herb	excavation						
1275	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, very	forb	trenchwall						
1276	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
1277	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	forb		annual/biennial	43.8207	-117.026	Sa		
1278	Maroua, extreme N	Sudano- Sahelian	sandy-silt, butsurface	shrub	excavation to 1.5m						
1279	N. Dande Com Ld, N	subtropical dry forest	sandy loam (alluvium)	tree	excavation						
1280	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	shrub	excavation						
1281	Boise, Idaho	semi-arid shrub-steppe	Granitic clay, thin humus	forb	trenchwall						
1282	Minitoba (Canada) and	Boreal forest	deep, thawed soil	tree	excavation						
1283	England and Scotland	plantation on upland	podzolized silty loam frin slate	tree	excavation						
1284	England and Scotland	plantation on upland	strongly developed	tree	excavation						
1285	Ontario, CA, Lake Sup. N	Boreal forest	humus, glay, medium-coarse	tree	exavation						
1286	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1287	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1288	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1289	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1290	Nine-state, Hokkaido,	temperate broadleaf	sand loam to humus loam	tree	excavation						
1291	Nine-state, Hokkaido,	temperate broadleaf	sand loam to humus loam	tree	excavation						
1292	SE of Lesser Slave Lake,	boreal mixed forest	organic (TerrieMesisol)	tree	trenchwall						
1293	North Kazakhstan	forest steppe	weakly alkaline and saline clay-	tree	trench +cores						
1294	North Kazakhstan	forest steppe	deep weakly saline meadow-	tree	trench +cores						
1295	North Kazakhstan	forest steppe	normal meadow-chernozem	tree	trench +cores						
1296	Chihuahuan desert, N-C	arid desert	clay loam (0.25m) on	shrub	trenchwall						
1297	Chihuahuan Desert, New	xeric shrubland	loamy, with gravel-stone	shrub	excavation						
1298	Chihuahuan Desert, New	xeric shrubland	fine sandy loamy	shrub	excavation						
1299	Chihuahuan Desert, New	xeric shrubland	fine loamy	shrub	excavation						
1300	Mojave desert,	Arid desert		shrub	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1301	S California, USA	subtropical desert	granitic alluvium	shrub		perennial	34.33	-116.53	Ro		
1302										1	
1303	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb	excavation						
1304	Central Portugal	Mediterrane an shrubland	humic cambissols	shrub	excavation						
1305	Paragomin As, Para, NE	tropical rainforest	clay (Latosol), on ironstone,	tree	deep soilshaft						
1306	Paragomin As, Para, NE	tropical rainforest	deeply weathered clay	tree	deep soilshaft						
1307	N. Cape Province, W.	ecotone: xeric shrub	freely drained sandy soil with	leaf succulent	excavation						
1308	SW South Africa	xeric shrubland,	sandy loam over loose bedrocks	small-leaf succulent	excavation						
1309										1	
1310	Istria, Croatia		red earth	forb	excavation						
1311	Zailiisky Alatau Range,	dry steppe		rhizomatous herb	trench						
1312	Illinoise	temperate deciduous	black clay loam, high lime	herb	excavation						
1313	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
1314										0	
1315										1	
1316											
1317	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1318	Subclimax Prairies, near	prairie- chaparral	more adundance of	herb	excavation						
1319	Bot River, South Africa	Mediterrane an, fynbos of	Humus, sand and gravel, rocks	small tree or shrub	excavation						
1320	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	mid-high shrub	excavation						
1321	Morogoro, E. Tanzania	subtropical dry forest	sandy loams, poor in Org and	legume tree	soil coringto 1m						
1322	Medicine Bowel Range,	alpine tundra	stony scree	leaf-succulent, storage	exavation						
1323	E of Idaho Falls, ID	semi-arid shrub-steppe	clayey silt	grass	32P radiotracer						
1324	E of Idaho Falls, ID	semi-arid shrub-steppe	aeolian sandy loam and loess	grass	32P radiotracer						
1325	Idaho, USA		aeolian sandy loam							1	
1326	SE Idaho, INEL	semi-arid shrub-steppe	sandy loam to clay; calcic	grass	131I radiotracer						
1327										1	
1328	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
1329	Prairies of E. Nebraska	prairie	clay loam withclay subsoil	herb	excavation						
1330	Prairies of E. Nebraska	prairie	clay with sandy Sub soil	herb	excavation						
1331	Illinoise	temperate deciduous	coarse yellow sand	herb	excavation						
1332	Illinoise	temperate deciduous	brown Silt Loam on Drift, well	herb	excavation						
1333	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1334	Judaean Desert, Israel	arid desert		forb							
1335	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	subshrub (w. stolons)	excavation						
1336	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
1337	North Carolin A,	Temperate mixed forest	sandy clay loam, then sandy loam	tree	excavation						
1338	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
1339	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb	trenchwall						
1340	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1341	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	forb		perennial	43.8207	-117.026	Sa		
1342	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
1343	northern Kyoto City,	wetland	peat	herb	excavation for						
1344	Prince Edward	cropland	fine sandy Loam on glacial till	grass	coring, and						
1345	Victoria, S. Australia	managed pasture		bunch grass	soil coring						
1346	Victoria, S. Australia	managed pasture	clay loam	bunch grass	soil coring						
1347	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
1348	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1349	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	tree	excavation						
1350	San Gabrial / Bernardino	Chaparral	litter, humus (0.08-0.15m) on	subshrub	excavation						
1351	California, USA	mediterranean sclerophyllous shrubland	loam to clay loam on diorite	semi-shrub		perennial	34.2	-117.76	Lo		
1352										0	
1353	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1354	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						

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1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1355	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
1356	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1357	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
1358	Boise, Idaho	semi-arid shrub-steppe	glacial drift of granitic origin,	forb	trenchwall						
1359	Mojave desert,	Arid desert		shrub	excavation						
1360	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	tall shrub	excavation						
1361	Mojave desert,	Arid desert		shrub	excavation						
1362	Kalahari Desert, W.	subtropical dry forest	thick, homogeneous	shrub, small tree,	exavation						
1363	near Poughkeepsie	temperate broadleaf		forb (rhizomatous)	excavation						
1364	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	forb (creeping)	excavation						
1365	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	forb (creeping	excavation						
1366	Sweedish Lapland	tundra		forb	excavation						
1367	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1368	southern Saskatchewan	Canadian Prairies	sand	subshrub	trenchwall						
1369	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
1370	Subclimax Prairies, near	prairie- chaparral	mellow loess	herb	excavation						
1371	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1372	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1373	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1374	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1375	E. Nebraska	Prarie with planted and	Sogn silty claylaom	tree	excavation						
1376	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	forb		annual	44.16	-122.34	Lo		
1377	Monroe county, SW	swamp forest		tree	50cm soilcores						
1378	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	herb (rhizomatous)	excavation						
1379	California, USA	mediterranean sclerophyllous shrubland		shrub		perennial	34.03	-118.72			
1380	Pepperdine University, Malibu, California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub		perennial	34.23	-118.423	Ro		
1381	Pepperdine University, Malibu, California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub		perennial	34.23	-118.423	Ro		
1382	E. Nebraska	Prarie with planted and	Butler silt loam	tree	excavation						
1383	W NY	apple tree orchards	Granby loam:Group-3: Dark-	tree	excavatio						
1384	W NY	apple tree orchards	Collamer siltloam: Group-2:	tree	excavation						
1385	W NY	apple tree orchards	Petoskey loamy fine sand: Group	tree	excavation						
1386	Zailiisky Alatau Range,	dry steppe		tree	trench						
1387	North Dakota	Prairie	Fargo clay, calcareous,	tree	trenchwall						
1388	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
1389	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	small tree	excavation						
1390	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
1391	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
1392	S. Uruguay	temporate grassland	silty clay loam	herb	soil coring						
1393	Escalante Valley, Utah	arid valleys of the US SW		forb	excavation						
1394	S. South Australia	Mediterra shrubland		small tree	root obschamber +						
1395	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
1396	Mojave Desert,		granite alluvium	shrub	excavation						
1397	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
1398	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
1399	northern Kyoto City,	wetland	peat	herb	excavation for						
1400	northern Kyoto City,	wetland	peat	herb	excavation for						
1401	Cambridgeshi re, England	temperate deciduous	chalky boulder-clay	herb, woodland	excavation						
1402	Cambridgeshi re, England	temperate deciduous	chalky boulder-clay	herb, woodland	excavation						
1403	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1404	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
1405	Victoria, S. Australia	managed pasture		grass	soil coring						
1406	Victoria, S. Australia	managed pasture	clay loam	grass	soil coring						
1407	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
1408	Aiuaba, Brazil	Caatinga (Savanna)	Regosol	tree	trenchwall						
1409	California, USA	mediterranean sclerophyllous shrubland		semi-shrub		perennial	34.2	-117.76			

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1410	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
1411	northern Kyoto City,	wetland	peat	grass	excavation for						
1412	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
1413	SW France	Mediterran pine	eaolian sand /Entic to Densic	grass	coring						
1414	Israel, Negev desert, duns	arid desert	dune sand	shrub	minirhizotron						
1415	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
1416	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay, poorly	tree	excavation						
1417	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
1418	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
1419	near Kitwe, N. Zambia	subtropical dry forest	deep sand	tree	excavation						
1420										1	
1421	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
1422	E. Nebraska	Prarie with planted and	Pawnee silty clay loam	tree	excavation						
1423	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
1424	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
1425	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
1426	Chihuahuan Desert, New	xeric shrubland	fine silt	grass	excavation						
1427	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	short grass	excavation						
1428										1	
1429	Front Range Rockies, near	mountain forest	loose fine grey sand on	bunch grass	exavation						
1430	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	bunch grass	exavation						
1431	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	bunch grass	exavation						
1432	Colorado		sandy clay loam subsoil							1	
1433	Chihuahuan Desert, New	xeric shrubland	fine loamy	grass	excavation						
1434	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	bunch grass	excavation						
1435	central Nevada	riparian medow	Aquiccryoboroll,	grass	soil pit						
1436	central Nevada	riparian medow	Pachichaplocryoll	grass	soil pit						
1437	Greenhouse	NR	River sand in 1 PVC tubes	Herbaceous perennial: Bunchgrass	Greenhouse exp.					1	
1438	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	cusion shrub	excavation						
1439	INTA Rio Mayo,	Patagonian steppe	coarse textured with gravel and	shrub	unclear						
1440	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
1441										0	
1442											
1443	Central Portugal	Mediterrane an shrubland	humic cambissols	shrub	excavation						
1444	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
1445	Patagonia	Desert grass/dwarf	Alluvial; 0 -0.3 m clay with stones;	herb, subshrub	excavation						
1446	Marin County, N-C	Mediterrane an grassland	sandy loam, sandstone/shale	grass	soil coring						
1447	S California, USA	mediterranean grassland	clay loam over clay	cespitose grass		perennial			ClLo		
1448	Tuxtlas, SE Mexico	tropical rainforest	well-drained, coarse-textured	tree	soil pitsand coring						
1449	Merida city, Yucatán,	subtropical dry forest	rocky, shallow (0.3m), red,	tree	root counton quarry						
1450	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
1451	Chihuahuan Desert, New	xeric shrubland	gypsum soil	herb	excavation						
1452										0	
1453	Guerbantung gute desert,	arid desert	sandy, saline	shrub	excavation						
1454	S. Island, New Zealand	Subtropical moist forest	tephra on loess	tree	soilsampling						
1455	Patagonia	Deciduous scrub	Alluvial; +0.03-0m humus; 0-	tree or shrub	excavation						
1456	S. C. Chile	subtropical moist forest	fertile, well drained, derived	tree	soil coring						
1457	Patagonia	Deciduous forest	Glacial moraine & volcanic;	tree or shrub	excavation						
1458	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1459	North province, W	tree savanna / subtropical	deep, medium-textured	shrub	excavation						
1460	northern Transvaal,	tree savanna	sand, well drained	small tree	excavation						

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1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1461	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
1462	S Ghana	tropical semi- deceduous		tree	excavation						
1463	S Ghana	tropical semi- deceduous		tree	excavation						
1464										1	
1465	near Hainz, Germany	temperate forest	sand	forb	excavation						
1466	Deep Canyon Desert Research Center, California	subtropical desert	gravely, sandy loam	succulent		perennial	33.38	-116.24	SaLo		
1467	North-Central Arizona	arid desert	sand	cactus	excavation						
1468	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	cactus	excavation						
1469	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	cactus	excavation						
1470	Illinoise	temperate deciduous	coarse yellow sand	succulent	excavation						
1471	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	succulent		perennial	35.011	-115.4734	Sa		
1472	Mojave Desert,		granite alluvium>30 deep	shrub	excavation						
1473	Chihuahuan desert, N-C	arid desert	clay loam (0.25m) on	cactus	trenchwall						
1474	NE Para, Brazil		loamy sand over sandy loam, low	grass, shrubs	soil coringto 6m						
1475	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	grass	excavation						
1476	E of Idaho Falls, ID	semi-arid shrub-steppe	aeolian sandy loam and loess	grass	32P radiotracer						
1477	Ugham (Tianshan)	dry steppe		geophyte (tuberous	excavation						
1478	E. Nebraska	Prarie with planted and	Marshall siltloam	tree	excavation						
1479	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	mid-high shrub	excavation						
1480	Sonora, Mexico,	arid desert		large cactus	excavation						
1481	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
1482	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
1483	Tuxtlas, SE Mexico	tropical rainforest	well-drained, coarse-textured	tree	soil pitsand coring						
1484	Paragomin As, Para, NE	tropical rainforest	clay (Latosol), on ironstone,	grass	deep soilshaft						
1485	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
1486	Zailiisky Alatau Range,	dry steppe		rhizomatous herb	trench						
1487	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
1488	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay, poorly	tree	excavation						
1489	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	tree	excavation						
1490	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
1491										1	
1492	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
1493	Medicine Bowel Range,	alpine tundra	stony scree	leaf-succulent	exavation						
1494	N slope of Alborz	temperate broad-leaf	thin soil mantleover bedrock	tree	trench						
1495	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
1496	Tuxtlas, SE Mexico	tropical rainforest	well-drained, coarse-textured	grass	soil pits and coring						
1497	NE Para, Brazil		loamy sand over sandy loam, low	woody vine	soil coringto 6m						
1498	Death Valley, California, USA	subtropical semi-desert	sand to silt	forb		annual	36.5323	-116.9325	Si		
1499	Northern Minnesota	Boreal forest	coarse sand	grass, herbs	excavation						
1500	Sweedish Lapland	tundra		forb	excavation						
1501	Northern Sahara,	arid desert	fine sand, then hard layer, then	shrub	excavation						
1502	Northern Sahara,	arid desert	fine sand, then hard layer, then	herb	excavation						
1503	Northern Sahara,	arid desert		herb	excavation						
1504	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated sands (rive	tree	excavation						
1505	Victoria, S. Australia	managed pasture		grass	soil coring						
1506	Victoria, S. Australia	managed pasture		grass	soil coring						
1507	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	suffrutescent forb		perennial	43.8207	-117.026	Sa		
1508	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1509	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb / subshrub	trenchwall						
1510	Chihuahuan Desert, New	xeric shrubland	fine loamy	herb	excavation						
1511	C. Hurungwe Com Ld, N.	subtropical dry forest	loamy sand (poorly drained)	tree	excavation						
1512	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	tree	excavation						
1513	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay, poorly	tree	excavation						
1514	C. Omay Com Ld, N.	subtropical dry forest	shallow loamy sand	tree	excavation						
1515										1	
1516											
1517	Illinoise	temperate deciduous	brown Silt Loam on Drift, well	herb	excavation						
1518	Illinoise	temperate deciduous	coarse yellow sand	herb	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1519	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
1520	Prairies of E. Nebraska	prairie	loess	herb	excavation						
1521	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
1522	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	herb	excavation						
1523	Victoria, S. Australia	managed pasture		bunch grass	soil coring						
1524	Victoria, S. Australia	managed pasture	clay loam	bunch grass	soil coring						
1525	Zailiisky Alatau Range,	dry steppe		forb	trench						
1526	Medicine Bowel Range,	alpine tundra	stony scree	forb, matt forming	exavation						
1527	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
1528	southern Saskatchewan	Canadian Prairies	sand	forb	trenchwall						
1529	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
1530	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
1531	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
1532	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
1533	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
1534	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb / subshrub	trenchwall						
1535	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	semi-shrub		perennial	43.8207	-117.026	Sa		
1536	San Gabrial / Bernardino	Chaparral	litter, humus (0.08-0.15m) on	large shrub	excavation						
1537	northern Kyoto City,	wetland	peat	grass	excavation for						
1538	northern Kyoto City,	wetland	peat	grass	excavation for						
1539										1	
1540	N. Illinoise near Lake	temperate riparian	black muck or partially	reed	excavation						
1541	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
1542	Chilanga, S. Zambia	subtropical dry forest	loam	shrub	excavation						
1543	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	shrub	excavation						
1544	Sweedish Lapland	tundra		drawrf shrub	excavation						
1545	N. Harz Mountain,	temperate forest	Coarse textured	tree	rootexcavatio						
1546	N. Harz Mountain,	temperate forest	Coarse textured	tree	rootexcavatio						
1547	N. Harz Mountain,	temperate forest	Coarse textured	tree	rootexcavatio						
1548	Rhineland- Palatin Ate,	temperate forest	silty loam	tree	trenchwall						
1549	Rhineland- Palatin Ate,	temperate forest	silty loam	tree	trenchwall						
1550	Rhineland- Palatin Ate,	temperate forest	silty loam	tree	trenchwall						
1551	near Wilhelmsburg	temperate broad-leaf	4cm O, clayloam, 40-60%	tree	trench profile						
1552	near Wilhelmsburg	temperate broad-leaf	4cm O, nutrient rich Cambisol	tree	trench profile						
1553	Tharandt, E. Germany	temperate deciduous	Dystric to Dystri-Stagnic	tree	soil coringto 30cm						
1554	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
1555	Minitoba (Canada) and	Boreal forest	deep soil on a slope	tree	excavation						
1556	Minitoba (Canada) and	Boreal forest	moss/leaf mold (6cm), brown	tree	excavation						
1557											
1558	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1559	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1560	Ontario, CA, Lake Sup. N	Boreal forest	humus, glay, medium-coarse	tree	exavation						
1561	British Columbia and	riparian forest		tree	river-cutbanks						
1562	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1563	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1564	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1565	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1566	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1567	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1568	Michigan	Boreal forest	0-6" sandy loam, 6-24" loamy	tree	excavation						
1569	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1570	Ontario, CA	Boreal forest	0-6" silty clayloam, 6-24" silt	tree	excavation						
1571	Ontario, CA	Boreal forest	0-6" silt loam, 6-24" sand	tree	excavation						
1572	Ontario, CA	Boreal forest	0-6" silt loam, 6-24" loam	tree	excavation						
1573	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
1574	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1575	SE of Lesser Slave Lake,	boreal mixed forest	shallow Sandy outwash	tree	trenchwall						
1576	near Grande Prairie,	Boreal forest	very poorly-drained	tree	excavation						
1577	near Fox Creek,	Boreal forest	very poorly-drained	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1578	mouth of Hay River,	Boreal forest	waterloggedGleysolic (Rego	tree	excavation						
1579	E of Kakisa Lake,	Boreal forest	poorly drained Gleysolic	tree	excavation						
1580	N. of Fort Providence,	Boreal forest	imperfectly drained Organic	tree	excavation						
1581	south of Valleyview,	Boreal forest	well-drainedPodzolic	tree	excavation						
1582	near Goodwin,	Boreal forest	very poorly-drained	tree	excavation						
1583	Waskahigan River, Alberta	Boreal forest	well-drained Regosolic (Mor	tree	excavation						
1584	near Entrance,	Boreal forest	imperfectly-drained Podzolic	tree	excavation						
1585	near Grande Prairie,	Boreal forest	imperfectly-drained	tree	excavation						
1586	near Hay River,	Boreal forest	well-drained Regosolic	tree	excavation						
1587	Brule Lake , Alberta CA	Boreal forest	well-drained, near uniform	tree	excavation						
1588	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1589	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1590	Ontario, CA, Lake Sup. N	Boreal forest	humus, glay, medium-coarse	tree	exavation						
1591	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1592	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1593	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1594	Central Alberta, CA	boreal forest	peat to depth examined	tree	peat blocksampling						
1595	Minitoba (Canada) and	Boreal forest	moss/leaf mold (6cm), brown	tree	excavation						
1596	Minitoba (Canada) and	Boreal forest	deep sandy soil	tree	excavation						
1597	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1598	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
1599	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
1600	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
1601	Michigan	Boreal forest	0-6" loamy sand, 6-24" loamy	tree	excavation						
1602	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1603	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1604	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1605	Ontario, CA	Boreal forest	0-6" silt loam, 6-24" loam	tree	excavation						
1606	Ontario, CA	Boreal forest	0-6" silt loam, 6-24" sand	tree	excavation						
1607	Michigan	Boreal forest	0-6" loam, 6-24" sandy loam	tree	excavation						
1608	Michigan	Boreal forest	0-6" sand, 6-24" sand	tree	excavation						
1609	Ontario, CA	Boreal forest	0-6" silty clayloam, 6-24" silt	tree	excavation						
1610	Michigan	Boreal forest	0-6" loam, 6-24" sandy loam	tree	excavation						
1611	Minnesota	Boreal forest	0-6" clay loam, 6-24" clay	tree	excavation						
1612	Michigan	Boreal forest	0-6" sand, 6-24" sand	tree	excavation						
1613	Ontario, CA	Boreal forest	0-6" silt loam, 6-24" loam	tree	excavation						
1614	Michigan	Boreal forest	0-6" sandy loam, 6-24"	tree	excavation						
1615	SE of Lesser Slave Lake,	boreal mixed forest	organic (TerrieMesisol)	tree	trenchwall						
1616	SE of Lesser Slave Lake,	boreal mixed forest	organic (TerrieMesisol)	tree	trenchwall						
1617	SE of Lesser Slave Lake,	boreal mixed forest	organic sand (Humic Gleysols,	tree	trenchwall						
1618	Nine-state, Hokkaido,	temperate broadleaf	humus loam	tree	excavation						
1619	Zailiisky Alatau Range,	dry steppe		tree	trench						
1620	Cumbria, U.K.	plantation	peat gley	tree	excavation						
1621	NE Cumbria, UK	temperate mixed forest	peaty glay on glacial till	tree	excavation by						
1622	NE Cumbria, UK	temperate mixed forest	peaty glay on glacial till	tree	excavation by						
1623	NE Cumbria, UK	temperate mixed forest	peaty glay on glacial till	tree	excavation by						
1624	Scotland	temperate mixed forest	deep blanket peat	tree	peatcoring						
1625	England and Scotland	plantation on upland	podzolized silty loam frin slate	tree	excavation						
1626										1	
1627										1	
1628	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1629	Lapland, Sodankyla, N.	boreal forest		tree	excavation						
1630	NW Hwange, W. Zimbabwe	subtropical dry forest	vertisol	tree	excavation						
1631	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated karoo sands	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1632	Chilanga, S. Zambia	subtropical dry forest	clay over limestone	tree	excavation						
1633	Ontario, CA, Lake Sup. N	Boreal forest	humus, glay, medium-coarse	tree	exavation						
1634	Northern Minnesota	Boreal forest	coarse sand	tree	excavation						
1635	Northern Minnesota	Boreal forest		tree	excavation						
1636	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1637	Minitoba (Canada) and	Boreal forest	deep sandy soil	tree	excavation						
1638	Minitoba (Canada) and	Boreal forest	deep, thawed soil	tree	excavation						
1639	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1640	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1641	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1642	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1643	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1644	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1645	Puerto Rico	tropical rainforest	48% clay, 31%silt, 21% sand	tree	coring + in-growth						
1646	Zululand, South Africa	subtropical dry forest	deep sand	tree	excavation						
1647	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	tree	exavation						
1648	NE Oregon, US	temperate evergreen	pumicite sitl, basalt clay / Tolo	tree	exavation						
1649	Inverness- shire,	temperate broadleaf	deep peat	tree	excavation						
1650	Inverness- shire,	temperate broadleaf	deep peat	tree	excavation						
1651	Inverness- shire,	temperate broadleaf	deep peat	tree	excavation						
1652	Inverness- shire,	temperate broadleaf	deep peat	tree	excavation						
1653	near Banf, Canadian	mountain forest	peat/boulderpavement/clay/	tree	excavation						
1654	near Banf, Canadian	mountain forest	loam/clay/clayloam/stony clay	tree	excavation						
1655	near Banf, Canadian	mountain forest	loamy fine sand/gravel/clay	tree	excavation						
1656	Colorado, 40km W of	mountain forest	gravely sand, glacial morainic	tree	excavation						
1657	Colorado, 40km W of	mountain forest	gravely sandy loam, glacial	tree	excavation						
1658	Scotland	temperate mixed forest	deep blanket peat	tree	peatcoring						
1659	England and Scotland	plantation on upland	strongly developed	tree	excavation						
1660	S-Canada									1	
1661										1	
1662	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1663	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
1664	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
1665	northern Kyoto City,	wetland	peat	tree	excavation for						
1666	Pinelands, central NJ	pine barrens of coastal	Lakewood sand (coastal plain	tree	excavation						
1667	Arkansas, US	temperate mixed forest	silty loam	tree	trenchwall						
1668	Arkansas, US	temperate mixed forest	fine sandy-loam	tree	trenchwall						
1669	Arkansas, US	temperate mixed forest	fine sandy-loam	tree	trenchwall						
1670	North Carolin A,	Temperate mixed forest	sandy loam, clayloam, then clay	tree	excavation						
1671	Canyon Land, S. Utah	arid desert	fractured sandstone and	tree	nauraluranium						
1672	Canyon Land, S. Utah	arid desert	fractured sandstone and	tree	nauraluranium						
1673	Canyon Land, S. Utah	arid desert	fractured sandstone and	tree	nauraluranium						
1674	Canyon Land, S. Utah	arid desert	fractured sandstone and	tree	nauraluranium						
1675	Canyon Land, S. Utah	arid desert	fractured sandstone and	tree	nauraluranium						
1676	Canyon Land, S. Utah	arid desert	fractured sandstone and	tree	nauraluranium						
1677	Mesa land, N. New Mexico	mountain forest	thin soil on awell-fractured	tree	uraniumas tracer						
1678	Zululand, South Africa	subtropical dry forest	deep sand	tree	excavation						
1679	NE Florida	plantation	fine sand (92%)for 2m, cap rise	tree	excavation + core +						
1680	NE Florida	plantation	fine sand (92%)for 2m, cap rise	tree	excavation + core +						
1681	7km NE of Gainsville, FL	subtropical mixed forest	sandy spodosol, poorly drained	tree	coring, trench,						
1682	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
1683	Southern Sierras, CA	Mediterrane an woodland	coarse loamy	tree	soil/rocksampling +						
1684	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1685	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1686	Nine-state, Hokkaido,	temperate broadleaf	sandy loam toloam	tree	excavation						
1687	England and Scotland	plantation on upland	strongly developed	tree	excavation						
1688	SW Georgia, US	Subtropical moist forest	sandy loam, sandy clay loam	tree	excavation						
1689	SW Georgia, US	Subtropical moist forest	deep sandy /Typic	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1690	W. Florida, Choetawhatc	subtropical moist forest	sandy coastalplain	tree	excavation						
1691	east of Pensacola,	subtropical moist forest	deep sand (96-98%)	tree	excavation						
1692	east of Pensacola,	subtropical moist forest	deep sand (96-98%)	tree	excavation						
1693	east of Pensacola,	subtropical moist forest	deep sand (96-98%)	tree	excavation						
1694	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1695	north of Nairobi,	plantation	loam, deep, free-draining latosol	tree	soil coring						
1696	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1697	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1698	SW France	Mediterran pine	eaolian sand /Entic to Densic	tree	coring						
1699	SW France	Mediterran pine	eaolian sand /Entic to Densic	tree	coring						
1700	S. of Bordeaux,	drained plantation		tree	excavation						
1701	S. of Bordeaux,	drained plantation		tree	excavation						
1702	S. of Bordeaux,	drained plantation		tree	excavation						
1703	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1704	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay	tree	trench profile						
1705	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
1706	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
1707	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
1708	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
1709	Front Range Rockies, near	mountain forest	loose fine grey sand on	tree	exavation						
1710	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	tree	exavation						
1711	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	tree	exavation						
1712	Near Flagstaff,	arid desert	Gravelly: Looseor loamy,	tree	excavation						
1713	Oregon		clay loam soil							1	
1714	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	shrub	excavation						
1715	Tasmania, Australia	tree savana	krasnozem, basic, igneous,	tree	soil coringto 80cm						
1716	Tasmania, Australia	tree savana	groundwater podzol, deep	tree	soil coringto 80cm						
1717	Tasmania, Australia	tree savana	podzol, sedimentary	tree	soil coringto 80cm						
1718	Tasmania, Australia	tree savana	podzol, sedimentary	tree	soil coringto 80cm						
1719	Tasmania, Australia	tree savana	podzol, acidigneous	tree	soil coringto 80cm						
1720	Kin Ale, Kenya	grass savanna	sandy loam, clay, high-perm	tree	excavation						
1721	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
1722	Esperance, Wesern	Mediterrane an shrubland	duplex soil, or sand over clay at	tree	trench profile						
1723	Esperance, Wesern	Mediterrane an shrubland	deep sand	tree	trench profile						
1724	near New Plymouth,	subtropical moist forest	coarse sandy loam with	tree	excavation						
1725	Newnes Plateau, New	sub-tropical dry forest	sandy-clay, highly	tree	coring andexcavatio						
1726	Upper P., Michigan	Boreal forest	very fine sandy loam	tree	excavation						
1727	Upper P., Michigan	Boreal forest	very fine sandy loam	tree	excavation						
1728	Upper P., Michigan	Boreal forest	very fine sandy loam	tree	excavation						
1729	Upper P., Michigan	Boreal forest	leached sand	tree	excavation						
1730	Upper P., Michigan	Boreal forest	leached sand	tree	excavation						
1731	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1732	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1733	southern Ontario,	temperate broadleaf	silty loam	tree	trenchwall						
1734	southern Ontario,	temperate broadleaf	gravely sandy loam	tree	trenchwall						
1735	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1736	southern Ontario,	temperate broadleaf	fine sand /sandy loam	tree	trenchwall						
1737	southern Ontario,	temperate broadleaf	silty loam	tree	trenchwall						
1738	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1739	southern Ontario,	temperate broadleaf	gravely sandy loam	tree	trenchwall						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1740	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1741	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1742	southern Ontario,	temperate broadleaf	gravely loam	tree	trenchwall						
1743	southern Ontario,	temperate broadleaf	fine sand /sandy loam	tree	trenchwall						
1744	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1745	southern Ontario,	temperate broadleaf	loamy sand	tree	trenchwall						
1746	southern Ontario,	temperate broadleaf	gravely loam	tree	trenchwall						
1747	southern Ontario,	temperate broadleaf	sand	tree	trenchwall						
1748	southern Ontario,	temperate broadleaf	loamy sand	tree	trenchwall						
1749	Upper Hudson	temperate broadleaf	coarse sandy, excessively	tree	excavation of deep						
1750	Pinelands, central NJ	pine barrens of coastal	Lakewood sand (coastal plain	tree	excavation						
1751	Near Mount Alo, S.	temperate mixed forest	raw, podsolized, stony, and high	tree	partialexcavatio						
1752	Pinelands, central NJ	pine barrens of coastal	Lakewood sand (coastal plain	tree	excavation						
1753	Pinelands, central NJ	pine barrens of coastal	Lakewood sand (coastal plain	tree	excavation						
1754	Pinelands, central NJ	pine barrens of coastal	Lakewood sand (coastal plain	tree	excavation						
1755	C. New Jersey	Temperate mixed forest	sand	tree	soil pit to1.5m deep						
1756	C. New Jersey	Temperate mixed forest	sand, firm clay layer in C	tree	soil pit to1.5m deep						
1757	C. New Jersey	Temperate mixed forest	sand	tree	soil pit to1.5m deep						
1758	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1759	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1760	Lapland, Sodankyla, N.	boreal forest	much stone	tree	excavation						
1761	Lapland, Sodankyla, N.	boreal forest	sandy, stone	tree	excavation						
1762	Lapland, Sodankyla, N.	boreal forest	stone-free heath sand	tree	excavation						
1763	Minitoba (Canada) and	Boreal forest	deep sandy soil	tree	excavation						
1764	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1765	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1766	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1767	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1768	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1769	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1770	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1771	North Kazakhstan	forest steppe	deep weakly saline meadow-	tree	trench +cores						
1772	England and Scotland	plantation on upland	peaty gleypodzols with	tree	excavation						
1773	England and Scotland	plantation on upland	strongly developed	tree	excavation						
1774	Inner Mongolia, NE	dry steppe	sandy, withmore silt and	tree	soilsample +						
1775	Inner Mongolia, NE	dry steppe	sandy	tree	soilsample +						
1776	Gansu Province, C.	dry steppe	loess with lowporosity	tree	excavation						
1777	piedmont- coastal plains	restored forest	O and A on sandy E on	tree	soilsampling						
1778	North Carolin A,	Temperate mixed forest	loam over clay	tree	excavation						
1779	Virginia / N. Carolin A, SE	temperate broad-leaf	clay soil	tree	excavation						
1780	Virginia / N. Carolin A, SE	temperate broad-leaf	clay soil	tree	excavation						
1781	Virginia / N. Carolin A, SE	temperate broad-leaf	sandy soil	tree	excavation						
1782	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1783	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1784	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1785	Near Ruston, N. Louisiana	temperate mix forest	loamy sand, onclay loam, on	tree	soil coringto 0.9m						
1786	Near Ruston, N. Louisiana	temperate mix forest	loamy sand, onclay loam, on	tree	soil coringto 0.9m						
1787	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1788	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1789	NE Para, Brazil		loamy sand over sandy loam, low	woody vine	soil coringto 6m						
1790	Aiuaba, Brazil	Caatinga (Savanna)	Luvisol	tree	trenchwall						
1791	S Ghana, near Kade, Agr Res	moist semi- desiduous	humus-10cm, well-drained	tree	soilmonoliths						
1792	La Pampa Province,	dry steppe	shallow soil, medium to	bunch grass	rootchamber						
1793	Algeria, N. Africa	Atlas Sahara	sandy-silt, calcareous,	tree	excavatinghalf tree						
1794	Almeria, S coast of Spain	Dry Mediterrane	dune sand	shrub	coring						
1795	Central Portugal	Mediterrane an shrubland	humic cambissols	shrub or small tree	excavation						
1796	Northern Sahara,	arid desert		herb	excavation						
1797	Victoria, S. Australia	managed pasture		herb	soil coring						
1798	Victoria, S. Australia	managed pasture	clay loam	herb	soil coring						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1799	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		
1800											
1801	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
1802										1	
1803											
1804	Chihuahuan Desert, New	xeric shrubland	fine loamy	grass	excavation						
1805	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	cespitose grass		perennial	35.011	-115.4734	Sa		
1806	Deep Canyon Desert Research Center, California	subtropical desert	sand	cespitose grass		perennial	33.38	-116.24	Sa		
1807	Palm Desert, California, USA	subtropical desert	sand	cespitose grass		perennial	33.38	-116.25	Sa		
1808	Palm Desert, California, USA	subtropical desert	sand	cespitose grass		perennial	33.38	-116.25	Sa		
1809											
1810	Salt River, C. Arizona	Riparian forest	sand	rhizomatous shrub	excavation						
1811	Arizona	stream bank	Sand	Shrub	Excavation					1	Y
1812	Zailiisky Alatau Range,	dry steppe		rhizomatous grass	trench						
1813	INTA Rio Mayo,	Patagonian steppe	coarse textured with gravel and	bunch grass	unclear						
1814	Zailiisky Alatau Range,	dry steppe		grass	trench						
1815	N. Illinoise near Lake	temperate riparian	black muck or partially	grass	excavation						
1816	central Nevada	riparian medow	Aquic cumuliccryoboroll,	grass	soil pit						
1817	central Nevada	riparian medow	Aquic cumulichaplocryoll	grass	soil pit						
1818	Hanford, SC Washington	semi-arid shrub-steppe	loamy sand on coarse sand	grass	excavation						
1819	near Pullman, SE	High Prairie	fine silt-loam, can be very	bunch grass	excavation						
1820	Boise, Idaho	semi-arid shrub-steppe	Granitic clay, thin humus	grass	trenchwall						
1821	SE Washington, USA	temperate semi-desert	loamy sand over sand	cespitose grass		perennial	46.242	-119.2	LoSa		
1822	SE Washington, USA	palouse prairie	silt loam	cespitose grass		perennial	46.5	-117.1	SiLo		
1823	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	cespitose grass		perennial	43.8207	-117.026	Sa		
1824	S. Island, New Zealand	Subtropical moist forest	tephra on loess	tree	soilsampling						
1825	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
1826	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
1827	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
1828	Death Valley, California, USA	temperate desert	sand	prostrate forb		annual	36.5323	-116.9325	Sa		
1829	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1830	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1831	Zailiisky Alatau Range,	dry steppe		rhizomatous herb	trench						
1832	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
1833	Sweedish Lapland	tundra		forb	excavation						
1834	Sweedish Lapland	tundra		forb (rhizomatous)	excavation						
1835											
1836	British Columbia and	riparian forest		tree	river-cutbanks						
1837	British Columbia and	riparian forest		tree	river-cutbanks						
1838	British Columbia and	riparian forest		tree	river-cutbanks						
1839	Minitoba (Canada) and	Boreal forest	frozen at 170cmdepth	tree	excavation						
1840	British Columbia and	riparian forest		tree	river-cutbanks						
1841	British Columbia and	riparian forest		tree	river-cutbanks						
1842	Parana River Delta,	wetland	0.3m organic over mineral	tree	excavation						
1843	British Columbia and	riparian forest		tree	river-cutbanks						
1844	E. Nebraska	Prarie with planted and	Cass loam	tree	excavation						
1845	E. Nebraska	Prarie with planted and	Marshall siltloam	tree	excavation						
1846	E. Nebraska	Prarie with planted and	Cass silty clayloam	tree	excavation						
1847	Taklamakan desert, W.	arid desert	pure silt	tree	excavation						
1848	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
1849	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
1850	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
1851	Taklamakan Desert, W.	arid desert	silt	tree	not clear						
1852	N. of Montpellier,	subhumid Mediterrane	sandy alluvialfluvisol, 8% clay,	tree	soil coringto 3m						
1853	Sonoran Desert,	Desert grass/dwarf	half gravel half sand, coarsest	tree	excavation						
1854	Sonoran Desert,	Desert grass/dwarf	sands and gravel	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1855	Sonoran Desert,	Desert grass/dwarf	stratas of coarse and medium	tree	excavation						
1856	Arizona	River bottomland	NR	Tree	Personal observation					1	Y
1857	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	tree	excavation						
1858	Japan		silt loam							0	
1859	Pamiro-Alay, W Tajikistan	dry steppe		tree	soilmonolith						
1860	Missouri		loam underlain with clay							0	
1861											
1862											
1863	Sweden		clay subsoil							1	
1864	Front Range Rockies, near	mountain forest	loose fine grey sand on	tree	exavation						
1865	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	tree	exavation						
1866	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	tree	exavation						
1867	near Roblin, Manitoba, CA	Priarie posholes	subxeric silty clay Orthic Gray	tree	trenchwall						
1868	British Columbia and	riparian forest		tree	river-cutbanks						
1869	SE of Lesser Slave Lake,	boreal mixed forest	outwash/moraine (sandy loam /	tree	trenchwall						
1870	SE of Lesser Slave Lake,	boreal mixed forest	outwash/moraine (sandy loam /	tree	trenchwall						
1871	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1872	SE of Lesser Slave Lake,	boreal mixed forest	eolian sand (Eutric Brunisol)	tree	trenchwall						
1873	S-Canada		sandy substrate							1	
1874	Michigan		grey clay							1	
1875	Utah		sandy loam							1	
1876											
1877	British Columbia and	riparian forest		tree	river-cutbanks						
1878	Reading, England	temporate broad-leaf	sandy loam	tree	soil coringto 1.5m						
1879										1	
1880											
1881	near Alice, S. Texas	savanna parkland	sandy loam soil 2m deep	understory shrub	1.5mcorning						
1882	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	herb	excavation						
1883	S. Austria	temperate broadleaf		forb	excavation						
1884	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb	trenchwall						
1885	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
1886	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
1887	near Nam Tso lake, central	alpine meadow		shrub	unclear						
1888	SE Washington, USA	palouse prairie	silt loam	semi-shrub		perennial	46.5	-117.1	SiLo		
1889	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	semi-shrub		perennial	43.8207	-117.026	Sa		
1890	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
1891	near Nam Tso lake, central	alpine meadow		herb	unclear						
1892	Puerto Rico, Luquillo	subtropical floodplain	coarse with claylenses	tree	soil pits +coring						
1893	NE Para, Brazil		loamy sand over sandy loam, low	tree	soil coringto 6m						
1894			moist and coldsoil	forb	excavation						
1895	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
1896	La Pampa Province,	dry steppe	shallow soil, medium to	legumous shrub	trenchwall						
1897	Morogoro, E. Tanzania	subtropical dry forest	sandy loams, poor in Org and	legume tree	soil coringto 1m						
1898	Central Monte,	desert (oasis)	sandy	tree	O and Hisotopes						
1899	Central Monte,	desert (oasis)	sandy	tree	O and Hisotopes						
1900	Central Monte,	desert (oasis)	sandy	tree	O and Hisotopes						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1901	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	tree	excavation						
1902	Chihuahuan Desert, New	xeric shrubland	mosaic of sandyor coarse-loamy	tree	excavation						
1903	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	tree	excavation						
1904	Chihuahuan Desert, New	xeric shrubland	fine silty, apaleosol at 3.2m	tree	excavation						
1905	near Alice, S. Texas	savanna parkland	sandy loam over claypan	legume tree	1.5mcorning						
1906	near Alice, S. Texas	savanna parkland	sandy loam soil 2m deep	legume tree	1.5mcorning						
1907	S. Texas	xeric shrubland	deep to very deep, sandy	shrub	soilcorning						
1908	Harper's Well, S. CA	arid desert	clay loam, then sand/clay lenses	tree	soil coring						
1909		playa lake	NR	Tree/Shrub						1	Y
1910	Texas	Savannah; karst	NR	Tree/Shrub	Personal observation					1	
1911	S California, USA	subtropical desert	sandy silt, ground water at 5 m	tree		perennial	32.95	-115.55	LoSa		
1912	S California	subtropical desert	sandy silt, ground water at 5 m	tree perennial						1	
1913	near Tucson, Arizona	Sonoran Desert	roots in gravel between layers	tree	open-pitmine						
1914										1	
1915	Sevilleta, NM	savanna and woodland		tree	soil coring						
1916	Engeling, TX	savanna and woodland		tree	soil coring						
1917	Riesel, TX	savanna and woodland		tree	soil coring						
1918	Central Plains Experimental	savanna and woodland		tree	soil coring						
1919	Jornada, NM	savanna and woodland		tree	soil coring						
1920	Vernon, TX	savanna and woodland		tree	soil coring						
1921										1	
1922	Pampa del Tamarugal,	arid desert		legume tree	excavation						
1923	Cananea, Mexico, near	xeric shrubland	thick alluvium	tree	O-18						
1924	Sonoran Desert,	arid desert	sand, adobe	tree	excavation						
1925	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	tall shrub	excavation						
1926	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	tall shrub	excavation						
1927	E. Nebraska	Prarie with planted and	Cass sandy loam	tree	excavation						
1928	E. Nebraska	Prarie with planted and	Marshall (heavy subsoil phase)	tree	excavation						
1929	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
1930	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
1931										1	
1932										1	
1933	Trieste, NE Italy	temperate hardwood	clay cave soil	tree	cave soil						
1934	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
1935	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (clonal)	excavation						
1936	E. Nebraska	Prarie with planted and	Knox silt loam	tree	excavation						
1937	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
1938	Nebraska		Wabash silt loam		Excavation					1	N
1939	C. Omay Com Ld, N.	subtropical dry forest	shallow loamy sand	small tree	excavation						
1940	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	small tree	excavation						
1941	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	small tree	excavation						
1942	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
1943	near Kitwe, N. Zambia	subtropical dry forest	deep sand	small tree	excavation						
1944	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	small tree	excavation						
1945	SE Washington, USA	temperate semi-desert	stony silt loam	rhiz./cesp. grass		perennial	47.7511	-120.7401	SiLo		
1946	SE Washington, USA	palouse prairie	silt loam chernozem	cespitose grass		perennial	47.7511	-120.7401	SiLo		
1947	SE Washington, USA	palouse prairie	silt loam	cespitose grass		perennial	46.5	-117.1	SiLo		
1948	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	rhiz./cesp. grass		perennial	43.8207	-117.026	Sa		
1949	Front Range Rockies, near	mountain forest	loose fine grey sand on	tree	exavation						
1950	Front Range Rockies, near	mountain forest	3-5cm litter, 25cm dark stony	tree	exavation						
1951	Front Range Rockies, near	mountain forest	5cm litter, 20cm coarse gravely	tree	exavation						
1952	eastern France	plantation	Regosols (sandy-gravely), stone	tree	trenchwall						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
1953	eastern France	plantation	Cambic Arenosols	tree	trenchwall						
1954	eastern France	plantation	Dystric Cambisol (loamy clay)	tree	trenchwall						
1955	eastern France	plantation	Dystric Cambisol (loamy clay), on	tree	trenchwall						
1956	eastern France	plantation	Cambisols (loamy-sand),	tree	trenchwall						
1957	eastern France	plantation	Cambisols (loamy-sand),	tree	trenchwall						
1958	eastern France	plantation	Cambisols (loamy-sand) on	tree	trenchwall						
1959	Vancouver Island,	temperate evergreen		tree	excavated						
1960	Vancouver Island,	temperate evergreen	silty loam, on gravely silty	tree	excavated						
1961	coastal Netherland	temperate broadleaf	well drained, dry, brown	tree	excavation						
1962	Krtny, E Czech Republic	plantation	cambisol, mesotrophic,	tree	excavation						
1963										1	
1964	near Oxford, UK, Bagley	temperate mixed forest	coarse sand to sandy loam 2m	tree	coring						
1965	Pusa, N Bihar, India, on the	orchards and rice fields	calcareous siltloam, 75% sand-	tree	exposureby						
1966	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
1967	Prairies of E. Nebraska	prairie	loess	herb	excavation						
1968	southern Saskatchewan	Canadian Prairies	loam	forb, legumous	trenchwall						
1969	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	herb	excavation						
1970	Prairies of E. Nebraska	prairie	loess	herb	excavation						
1971	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
1972										1	
1973	Barro Colorado	tropical moist forest		shrub	excavation						
1974	Barro Colorado	tropical moist forest		shrub	excavation						
1975	Barro Colorado	tropical moist forest		shrub	excavation						
1976	Barro Colorado	tropical moist forest		shrub	excavation						
1977	Barro Colorado	tropical moist forest		shrub	excavation						
1978	SW France	Mediterran pine	eaolian sand /Entic to Densic	herb	coring						
1979	SW France	Mediterran pine	eaolian sand /Entic to Densic	herb	coring						
1980	Central Portugal	Mediterrane an shrubland	humic cambissols	herb	trenchwall +						
1981	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	forb (rhizomatous)	excavation						
1982	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	tree	excavation						
1983	Gokwe, N. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
1984	near Secheke, SW Zambia	subtropical dry forest	Karoo sand	tree	excavation						
1985	near Secheke, SW Zambia	subtropical dry forest	Kalahari sand	tree	excavation						
1986	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1987	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1988	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1989	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		perennial	46.6475	-119.5986	LoSa		
1990											
1991			black earth with a wide and	forb	excavation						
1992	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	shrub	excavation						
1993	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
1994	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
1995	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
1996	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	shrub		perennial	46.6475	-119.5986	LoSa		
1997	Illinoise	temperate deciduous	brown Silt Loam on Drift, well	herb	excavation						
1998	North Carolin A,	Temperate mixed forest	clay	tree	excavation						
1999	Placer County, CA	Mediterrane an woodland		tree	tritiatedwater in						
2000	Shale Hills CZO, central	temperate mixed	well-draines siltloam, shale	tree	soil coringto 0.99m						
2001	Shale Hills CZO, central	temperate mixed	well-draines siltloam, shale	tree	soil coringto 1.09m						
2002	Shale Hills CZO, central	temperate mixed	fine loam, higher clay	tree	soil coringto 1.02m						
2003	Southern California, US	Mediterrane an woodland	coarse-loamy, well-drained	tree	newlyexposed						
2004	California, USA	mediterranean woodland		tree		perennial	35.3	-120.7			
2005	California, USA	mediterranean woodland		tree		perennial	35.3	-120.7			
2006	California, USA	mediterranean woodland		tree		perennial	35.3	-120.7			
2007	California	mediterranean woodland	NR	tree perennial						1	

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1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2008	California	mediterranean woodland	NR	tree perennial						1	
2009	California	mediterranean woodland	NR	tree perennial						1	
2010	California	mediterranean woodland	NR	tree perennial						1	
2011	NE Kentucky	temperate deciduous	loamy colluviumover clayey	tree	tritiumuptake						
2012	Ashland Wildlife Area,	temperate decidous	silt loam, thin O, increasing clay	tree	excavation +						
2013	Oak Ridge, TN	temperate broad-leaf		tree	soil coringto 0.9m						
2014	Oak Ridge, TN	temperate broad-leaf		tree	soil coringto 0.9m						
2015	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree	trenchwall,						
2016	E. Wisconsin	temperate hardwood	A1: dark gray siltloam 4"; A2:	tree, shrub	trenchwall,						
2017	Roccarespam pani, C. Italy	temperate deciduous	Luvisol with high clay content	tree	soil coringto 30cm						
2018	San Gabrial / Bernardino	Chaparral	either gravel terraces or	tree	road cut						
2019	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		
2020	California	mediterranean sclerophyllous shrubland	granitic bedrock/sandy loam on granodiorite							1	
2021	near Sacramento,	Chaparral	silty loam	tree	excavation + GPR						
2022	California, USA	temperate woodland		tree		perennial	38.8	-122.66			
2023	N California, USA	mediterranean woodland	fractured bedrock	tree		perennial	38.98	-121.23	Ro		
2024	central California, USA	temperate savanna	well-drained, Xeralf suborder	tree		perennial					
2025	central California, USA	temperate savanna	well-drained, Xeralf suborder	tree perennial						1	
2026	California, USA	temperate woodland	NR	tree perennial						1	
2027	N California, USA	mediterranean woodland	fractured bedrock	tree perennial						1	
2028	San Gabrial / Bernardino	Chaparral	litter, humus (0.08-0.15m) on	shrub	excavation						
2029	San Gabrial / Bernardino	Chaparral	either gravel terraces or	shrub	road cut						
2030	California, USA	mediterranean sclerophyllous shrubland	granitic bedrock	shrub		perennial	34.2	-117.76	Ro		
2031	Edwards Plateau, Cen.	savannah and	calcreous soil, karst	tree	excavation and cave						
2032	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2033	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2034	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2035	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2036	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2037	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2038	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2039	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2040	S. France	Mediterrane an	Shallow acidsoils w. many	shrub	elec.Resis.						
2041	S. France	Mediterrane an	Shallow acidsoils w. many	shrub	elec.Resis.						
2042	NE Spain	Mediterrane an dry forest	well structured clay-loam	tree	minirhizotron						
2043	S. France	Mediterrane an	Shallow rocky soils w. high clay	shrub	elec.Resis.						
2044	S. France	Mediterrane an	Shallow rocky soils w. high clay	shrub	elec.Resis.						
2045	N California, USA	mediterranean woodland	fractured rock	tree		perennial	38.98	-121.23	Ro		
2046	N California, USA	mediterranean woodland	fractured rock	tree		perennial	38.98	-121.23	Ro		
2047	N California	mediterranean woodland	fractured rock	tree perennial						1	
2048	E. Nebraska	Prarie with planted and	Knox silt loam	tree	excavation						

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1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2049	E. Nebraska	Prarie with planted and	Peorian and Loveland loess	tree	excavation						
2050	E. Nebraska	Riparian corridor	Carrington siltloam	tree	excavation						
2051	central Florida	subtropical scrub forest	well-drained, acid, sands,	tree	coring to1.5m,						
2052	Near Ruston, N. Louisiana	temperate mix forest	loamy sand, on silt loam, poorly-	tree	soil coringto 1.0m						
2053	NE France	temperate broadleaf	silty-clay loam (30cm),	tree	trenchwall						
2054	NW Germany	temperate deciduous	7.2cm O, on sandy, acidic,	tree	soil cores						
2055	NE Germany	temperate decidous	Limestone under loess	tree	trench profile						
2056	NW Germany	temperate decidous	Glacial sand	tree	trench profile						
2057	NW Germany	temperate decidous	Jurassic clay under glacial	tree	trench profile						
2058	C. New Jersey	Temperate mixed forest	sand	tree	soil pit to1.5m deep						
2059	Central Portugal	Mediterrane an shrubland	schist lithossols	tree	excavation						
2060	NE France	temperate broadleaf	silty-clay loam (30cm),	tree	trenchwall						
2061	Netherland	temperate deciduous	Moist, moderately acid	tree	trenchwall						
2062	Netherland	temperate deciduous	Moist humuspodsol soil	tree	trenchwall						
2063	Netherland	temperate deciduous	Moist humuspodsol soil	tree	trenchwall						
2064	Netherland	temperate deciduous	Reclaimed peatsoil with sandy	tree	trenchwall						
2065	Netherland	temperate deciduous	Reclaimed peatsoil with sandy	tree	trenchwall						
2066	NW Germany	temperate decidous	Quaternary clay under glacial	tree	trench profile						
2067	near Évora, SE Lisbon,	Mediterrane an woodland	very shallow (0.3m deep)	tree	sap flow, stem						
2068	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2069	North Carolin A,	Temperate mixed forest	loam, clay loam, then clay	tree	excavation						
2070	near Lisbon, Portugal	Mediterrane an woodland	well-drained deep Haplic	tree	excavation						
2071	SC Portugal, Tagus valley	Mediterra woodland	Haplic Arenosols (AR) on sand	tree							
2072	SC Portugal, Tagus valley	Mediterra woodland	AR interspersed with Stagnic	tree							
2073	N California, USA	mediterranean woodland	fractured rock	tree		perennial	38.98	-121.23	Ro		
2074	Placer County, CA	Mediterrane an woodland		tree	tritiatedwater in						
2075	Placer County, CA	Mediterrane an woodland		tree	tritiumtracer in						
2076	Placer County, CA	Mediterrane an woodland		tree	tritiatedwater in						
2077	Placer County, CA	Mediterrane an woodland		tree	tritiatedwater in						
2078	NW Guangxi province, SW	subtropical moist forest	thin soil (<30cm), clay to	tree	excavation						
2079	NW Guangxi province, SW	subtropical moist forest	rock outcrops, soil (loam) or	tree	excavation						
2080	NW Guangxi province, SW	subtropical moist forest	1m soil-rock frag mixture,	tree	excavation						
2081	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
2082	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
2083	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	grass	excavation						
2084	Judaean Desert, Israel	arid desert		forb							
2085	Judaean Desert, Israel	arid desert		shrub							
2086	Almeria, SE Spain	Dry Mediterrane	alluvial loamy sands and fine	shrub	coring						
2087	SE Spain	Mediterra shrubland	sand, gravel	shrub	lithiumchloride						
2088	Pamiro-Alay, W Tajikistan	dry steppe		forb	soilmonolith						
2089	Kalahari Desert, SW.	subtropical dry forest	thick, homogeneous	shrub, small tree, tree,	exavation						
2090	Zailiisky Alatau Range,	dry steppe		alpine shrub	trench						
2091	San Francisco	Woodland	Sandy		Professional research					1	
2092	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	rhizomtous shrub	excavation						
2093	E. Nebraska	Prarie with planted and	Bartlett silty clayloam	tree	excavation						
2094	near Peru, E. Nebraska	chaparral	loess	mediem to large shrub	excavation						
2095											
2096	California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub perennial						1	
2097	California	mediterranean sclerophyllous shrubland	sandstone with fissures	shrub perennial						1	
2098	California	mediterranean sclerophyllous shrubland	NR	shrub perennial						1	
2099											
2100				Shrub						1	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2101										1	
2102											
2103	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	tree	excavation						
2104	Gokwe, N. Zimbabwe	subtropical dry forest	kalahari sand	tree	excavation						
2105	Fuller For. Hwange, W.	subtropical dry forest	kalahari sand	tree	excavation						
2106	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
2107	E. Nebraska	Prarie with planted and	Cass silty clayloam	tree	excavation						
2108	Gansu Province, C.	dry steppe	loess with lowporosity	tree	excavation						
2109	near Peru, E. Nebraska	chaparral	loess, more compact below	shrub	excavation						
2110	Northern Minnesota	Boreal forest	coarse sand	shrub	excavation						
2111										1	
2112	Illinoise	temperate deciduous	coarse yellow sand	shrub	excavation						
2113	near Pullman, SE	High Prairie	fine silt-loam, can be very	shrub / herb	excavation						
2114	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	shrub	excavation						
2115	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	shrub	excavation						
2116	Zailiisky Alatau Range,	dry steppe		rhizomatous shrub	trench						
2117											
2118										1	
2119	Bajo Cinca, NE Spain	Mediterran desert	thin loam, with stone	xerophytic shrub	soil pits						
2120	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	rhizomtous shrub	excavation						
2121	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (clonal)	excavation						
2122										0	
2123	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	shrub	excavation						
2124	Cascade Mt., N. Oregon	Mountain forest	deep pumice soils	herb	excavation						
2125										1	
2126	Cascade Mt., N. Oregon	Mountain forest	deep pumice soils	herb	excavation						
2127										1	
2128	Central Portugal	Mediterrane an shrubland	humic cambissols	shrub	trenchwall +						
2129										1	
2130	Illinoise	temperate deciduous	brown silt loam	herb	excavation						
2131	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
2132	SW South Africa	xeric shrubland,	sandy loam over loose bedrocks	small-leaf succulent	excavation						
2133	Namaqualand , W. South	ecotone between	nutrient poor coarse sands	shrub	excavation						
2134	N. Cape Province, W.	ecotone: xeric shrub	freely drained sandy soil with	leaf succulent	excavation						
2135	Namaqualand , South Africa		sandy	shrub	excavation						
2136	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
2137	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
2138	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	shrub	excavation						
2139	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	small tree	excavation						
2140	Nine-state, Hokkaido,	temperate broadleaf		tree	excavation						
2141	Inner Mongolia,	arid desert	sand	shrub	excavation						
2142	Inner Mongolia,	arid desert	sand	shrub	excavation						
2143	Inner Mongolia,	arid desert	sand	shrub	excavation						
2144	Pamiro-Alay, W Tajikistan	dry steppe		grass	soilmonolith						
2145	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
2146	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
2147	Mojave Desert, California, USA	temperate semi-desert	decomposed granite							1	
2148										1	
2149											
2150											
2151											
2152										1	
2153	E. Nebraska	Prarie with planted and	Cass fine sandy loam	tree	excavation						
2154	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
2155	Japan		silt/loam							0	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2156										1	
2157										1	
2158										1	
2159										1	
2160										1	
2161	Arizona	River bottomland	NR	Tree	Personal observation					1	Y
2162										1	
2163										1	
2164										1	
2165										1	
2166										1	
2167										1	
2168										1	
2169	E. Nebraska	Prarie with planted and	Cass loamy sand	tree	excavation						
2170										1	
2171										1	
2172										1	
2173										1	
2174										1	
2175	Sweedish Lapland	tundra		shrub (prostrate,	excavation						
2176	Denali National Park,	Taiga	sandy -gravelly	clonal shrub	excavation						
2177	Denali National Park,	Taiga	sandy -gravelly	clonal shrub	excavation						
2178										1	
2179	Minitoba (Canada) and	Boreal forest	moss/leaf mold (6cm), brown	tree	excavation						
2180										1	
2181	NC North Dokota	temperate steppe	deep dune sand	tree	hydraulicexcavatio						
2182	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	forb	excavation						
2183	North-Central Arizona	arid desert	caly / graval	herb	excavation						
2184	Judaean Desert, Israel	arid desert		shrub							
2185	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2186	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2187	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2188	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2189	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2190	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2191	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2192	Hanford Site, Hanford, Washington	temperate semi-desert	sandy loam to sand	forb		annual	46.6475	-119.5986	LoSa		
2193	San Gabrial / Bernardino	Chaparral	coarse, loose gravel	subshrub	excavation						
2194	California, USA	mediterranean sclerophyllous shrubland	coarse, loose gravel	shrub		perennial	34.2	-117.76	Sa		
2195	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
2196	Mojave Desert, California, USA	temperate semi-desert	decomposed granite							1	
2197	San Gabrial / Bernardino	Chaparral	clay loam, on hardpan, cracks	subshrub	excavation						
2198	California, USA	mediterranean sclerophyllous shrubland	clay loam over hardpan	shrub		perennial	34.2	-117.76	ClLo		
2199										1	
2200										1	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2201											
2202	British Somaliland	semi-arid desert	alluvial sand	herb	excavation						
2203	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
2204	Mono Lake, California	arid desert	2-3.6m dune sand on lake	shrub	soil pitsand cores						
2205	E California, USA	temperate desert	clay loam, water table at 1 m	shrub		perennial	37.16666667	-118.2833333	ClLo		
2206	E California	temperate desert	clay loam, water table at 1 m	shrub perennial						1	
2207										1	
2208	Olifants Estuary, W-	Mediterrane an, wetland	loam on silt-loam, then sand	herb	soil cores						
2209	Olifants Estuary, W-	Mediterrane an, wetland	clay-loam on loam, then silt-	herb	soil cores						
2210	Tooele Valley, Utah	arid valleys of the US SW		shrub	excavation						
2211	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	small tree	excavation						
2212	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
2213	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
2214	near Alice, S. Texas	savanna parkland	sandy loam soil 2m deep	small thorny shrub	1.5mcorning						
2215	near Alice, S. Texas	savanna parkland	sandy loam over claypan	small thorny shrub	1.5mcorning						
2216	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	tall shrub	excavation						
2217										0	
2218	Riesel, TX	savanna and woodland		grass	soil coring						
2219	NR	Wetland	NR	Herbaceous perennial: Clonal graminoid	Personal observation					1	
2220										1	
2221	Chesapeake Bay	Coastal wetlands	NR	Herbaceous perennial: Clonal graminoid	Excavation (soil cores)					1	
2222										1	
2223										1	
2224	Nine-state, Hokkaido,	temperate broadleaf	sandy loam	tree	excavation						
2225	Parana River Delta,	wetland	0.3m organic over mineral	tall grass	soil cores						
2226										1	
2227	Chihuahuan Desert, New	xeric shrubland	fine silt	burrograss	excavation						
2228	Chihuahuan Desert, New	xeric shrubland	fine loamy	grass	excavation						
2229			deep alluvium	forb	excavation						
2230	Chiang Mai, Tailand	tropical rain forest		tree	soil coringand pits						
2231	NE Para, Brazil		loamy sand over sandy loam, low	tree	soil coringto 6m						
2232	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
2233	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
2234	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
2235	Medicine Bowel Range,	alpine tundra	stony scree	leaf-succulent	exavation						
2236	southern Saskatchewan	Canadian Prairies		forb	trenchwall						
2237	New York?			rhizomatous herb	excavation						
2238	35km S. of Brasilia, Brazil	Cerrado (grass/tree	clayey redlatossol (Oxisol)	trees	soil coring+ deep						
2239	Patagonia, NW Santa	dry steppe	gravely sandy loam or gravely	small shrub	excavation						
2240	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	herb	excavation						
2241	INTA Rio Mayo,	Patagonian steppe	coarse textured with gravel and	shrub	unclear						
2242	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	forb		annual	44.16	-122.34	Lo		
2243	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
2244	Nyabeda, western	grass savanna	very fine, kaolinitic, 73%	small tree	trenchwall to						
2245	Sequoia National Park,	mountain forest		tree	upturnedroot plate						
2246	Nine-state, Hokkaido,	temperate broadleaf	loam, sandy loam	tree	excavation						
2247	NW California, USA	temperate forest	sediments with organic layers	tree		perennial	40.33	-123.95			
2248	NW California	temperate forest	sediments with organic layers	tree perennial						1	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2249										1	
2250	7km NE of Gainsville, FL	subtropical mixed forest	sandy spodosol, poorly drained	small palm	coring, trench,						
2251										0	
2252											
2253											
2254											
2255	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
2256	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
2257	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
2258	Medicine Bowel Range,	alpine tundra	stony scree	forb	exavation						
2259	Medicine Bowel Range,	alpine tundra	stony scree	leaf-succulent and	exavation						
2260				forb	excavation						
2261	Illinoise	temperate deciduous	brown silt loam	herb	excavation						
2262	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
2263	Illinoise	temperate deciduous	brown silt loam	herb	excavation						
2264	Prairies of E. Nebraska	prairie	loess	herb	excavation						
2265	Illinoise	temperate deciduous	brown silt loam, well drained and	herb	excavation						
2266	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
2267	Malay Peninsula	tropical rainforest	Ultisol	tree	excavation						
2268	SE Washington, USA	temperate semi-desert	sandy loam to sand	forb		annual/biennial	46.242	-119.2	LoSa		
2269	Illinoise	temperate deciduous	brown Silt Loam on Drift, well	grass	excavation						
2270	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
2271	Cascade Mt., N. Oregon	Mountain forest	deep pumice soils	herb	excavation						
2272	near Pike's Peak,	Forest community	0.5" humus on humus-sand on	herb	excavation						
2273	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
2274	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	large climbing vine	excavation						
2275	North-Central Arizona	arid desert	sand with hard caliche	herb	excavation						
2276	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
2277	Chihuahuan Desert, New	xeric shrubland	fine loamy	herb	excavation						
2278	Prairies of E. Nebraska	prairie	loess	herb	excavation						
2279	southern Saskatchewan	Canadian Prairies	loam	forb	trenchwall						
2280	near Pike's Peak,	Half Graval- slide	gravel, sand, more humus	herb	excavation						
2281	Illinoise	temperate deciduous	brown silt loam	herb	excavation						
2282	Illinoise	temperate deciduous	brown Silt Loam on Drift, well	herb	excavation						
2283	Prairies of E. Nebraska	prairie	loess	herb	excavation						
2284	Sweedish Lapland	tundra		forb (rhizomatous)	excavation						
2285	N. Illinoise near Lake	temperate riparian	black muck or partially	reed	excavation						
2286	Illinoise	temperate deciduous	black clay loam, high lime	grass	excavation						
2287										1	
2288	Iowa,		silt loam							0	
2289	southern Saskatchewan	Canadian Prairies	loam	subshrub	trenchwall						
2290	Chihuahuan Desert, New	xeric shrubland	fine silt	herb	excavation						
2291	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
2292	North-Central Arizona	arid desert	compact sand-clay	shrub	excavation						
2293	Zailiisky Alatau Range,	dry steppe		shrub	trench						
2294	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
2295										1	
2296	Illinoise	temperate deciduous	coarse yellow sand	grass	excavation						
2297	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	grass	excavation						
2298	Nebraska	Grazed prairie	NR		Excavation					1	
2299	southern Saskatchewan	Canadian Prairies	sand	bunch grass	trenchwall						
2300	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	bunch grass	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2301	Nebraska		deeply eroded loess							1	
2302	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	grass	excavation						
2303	Iowa		silt loam							0	
2304	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
2305	Chihuahuan Desert, New	xeric shrubland	gypsum soil	grass	excavation						
2306											
2307	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
2308	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	small tree	excavation						
2309	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2310	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2311	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2312	southern Saskatchewan	Canadian Prairies	sand	bunch grass	trenchwall						
2313	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2314	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	grass	excavation						
2315	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	grass	excavation						
2316	INTA Rio Mayo,	Patagonian steppe	coarse textured with gravel and	bunch grass	unclear						
2317	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, low	grass	trenchwall						
2318	Vernon, TX	savanna and woodland		grass	soil coring						
2319	Illinoise	temperate deciduous	brown silt loam	grass	excavation						
2320	Prairies of E. Nebraska	prairie	loess	bunch grass	excavation						
2321	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2322	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2323	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2324	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2325	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2326	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2327	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2328	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2329	southern Saskatchewan	Canadian Prairies	gravel subsoil	bunch grass	trenchwall						
2330	INTA Rio Mayo,	Patagonian steppe	coarse textured with gravel and	bunch grass	unclear						
2331	Patagonia	Stipa grassland	Alluvial; +0. -0mshrub & tussock;	grass	excavation						
2332	La Pampa Province,	dry steppe	shallow soil, medium to	tussock grass	rootchamber						
2333	southern Saskatchewan	Canadian Prairies	loam	bunch grass	trenchwall						
2334	Namaqualand , W. South	ecotone between	nutrient poor coarse sands	C4 grass	excavation						
2335	N. Cape Province, W.	ecotone: xeric shrub	freely drained sandy soil with	C4 grass	excavation						
2336	Namaqualand , South Africa		sandy	shrub	excavation						
2337	Cascade Mt., N. Oregon	Mountain forest	deep pumice soils	herb	excavation						
2338	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	tree	excavation						
2339	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	small tree	excavation						
2340	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	small tree	excavation						
2341	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	small tree	excavation						
2342	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	small tree	excavation						
2343	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	small tree	excavation						
2344	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	tree	deep wells (shafts)						
2345	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
2346	Podocarpus Nat Park, S	tropical elfin forest	0.3m O, on 0.4m mineral soil	small tree	excavation						
2347	Judaean Desert, Israel	arid desert		leaf succulent forb							
2348											
2349											
2350										1	
2351											
2352											
2353	Bajo Cinca, NE Spain	Mediterran desert	silty loam orsilty clay loam,	halophilous herb	soil pits						
2354	near Bloomingdale	temperate deciduous	limy and sandy clay or mixture	stolonous shrub	excavation						
2355	near Peru, E. Nebraska	chaparral	loess	shrub	excavation						
2356	Death Valley, California, USA	temperate desert	sand	forb		annual	36.5323	-116.9325	Sa		

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2357	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
2358	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	tree	excavation						
2359	near Kitwe, N. Zambia	subtropical dry forest	sand	small tree	excavation						
2360	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	small tree	excavation						
2361	near Kitwe, N. Zambia	subtropical dry forest	sand, imperfectly	small tree	excavation						
2362	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
2363	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
2364	Puerto Rico	tropical rainforest	33% clay, 41%silt, 26% sand	tree	coring + in-growth						
2365	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
2366	Chihuahuan Desert, New	xeric shrubland	fine loamy	herb	excavation						
2367	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
2368	Northern Yucatan,	subtropical dry forest	shallow, rocky, high OM	tree	soil/rockpits +						
2369	Israel	run-on	alluvial		NR					0	
2370	Egypt, Israel	NR	NR		NR					0	
2371											
2372											
2373										0	
2374	Salt River, C. Arizona	Riparian forest	clay 1', sand/gravel 2'	tree	excavation						
2375	Salt River, C. Arizona	Riparian forest	sandy loam 3', caly 1.5', sandy	tree	excavation						
2376	Arizona		alluvial banks							0	
2377	Taklamakan desert, W.	arid desert	pure silt	shrub or small tree	excavation						
2378	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
2379	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
2380	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
2381	Taklamakan Desert, W.	arid desert	silt	shrub	not clear						
2382	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
2383	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
2384	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
2385	S. Kansas	riparian forest	coarse silts to medium sands	shrub	diurnalwell level						
2386	Kansas	Windbreak			Excavation					0	
2387	Kansas	Windbreak		Tree/Shrub	Excavation					0	Y
2388										0	
2389	central Taklimakan,	arid desert	sand	tree	excavation						
2390	Brunei, Andulau	Tropical rainfores	2-15cm O, clay-sand, clay	small tree	excavation						
2391	Nine-state, Hokkaido,	temperate broadleaf	humus loam	tree	excavation						
2392	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
2393	Nine-state, Hokkaido,	temperate broadleaf	loam	small tree	excavation						
2394	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
2395	Pusa, N Bihar, India, on the	subtropical monsoon	calcareous siltloam, 75% sand-	tree	exposureby						
2396	Varanasi, N India	Tropical mixed	sandy loam, well drained	tree	excavation						
2397	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	tree	excavation						
2398	Kalahari Desert, W.	subtropical dry forest	thick, homogeneous	tree, tree, tree, tree	exavation						
2399	North province, W	tree savanna / subtropical	deep, medium-textured	shrub	excavation						
2400	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
2401	northern Transvaal,	tree savanna	sand, well drained	tree	excavation						
2402	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated karoo sands	tree	excavation						
2403	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidated loamy sand	tree	excavation						
2404	Nyamandhlov u, W.	subtropical dry forest	kalahari sand, over sandy-clay	tree	excavation						
2405	near West Nicholson, S.	subtropical dry forest	coarse granite sand	tree	excavation						

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2406	C. Lup ane, W. Zimbabwe	subtropical dry forest	consolidates sands (poorly	tree	excavation						
2407	Kalahari Desert, NW.	subtropical dry forest	thick, homogeneous	tree, small tree, tree,	exavation						
2408	N. Dande Com Ld, N	subtropical dry forest	sand	tree	excavation						
2409	Colombian Amazon	tropical rainforest	clay loam /Endostagnic	tree	ingrowth+						
2410	Colombian	tropical rainforest	clay loam /Endostagnic	tree	ingrowth						
2411	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	grass (graminoid)	excavation						
2412										1	
2413	E California, USA	temperate desert	rocky sandy loam	semi-shrub		perennial	37.16666667	-118.2833333	SaLo		
2414	Zailiisky Alatau Range,	dry steppe		forb	trench						
2415	Mojave Desert,		granite alluvium>30 deep	shrub	excavation						
2416	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	semi-shrub		perennial	35.011	-115.4734	Sa		
2417	southern Saskatchewan	Canadian Prairies	loam	forb, legumous	trenchwall						
2418	southern Saskatchewan	Canadian Prairies	loam	forb, legumous	trenchwall						
2419	Victoria, S. Australia	managed pasture		bunch grass	soil coring						
2420	Victoria, S. Australia	managed pasture	clay loam	bunch grass	soil coring						
2421	near Pike's Peak,	Gravel-slide community	gravel	herb	excavation						
2422	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
2423	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
2424	S.Ontario, Canada	temperate broadleaf	no soil	small tree	excavation						
2425	Upper P., Michigan	swamp forest	less developed organic soil	tree	excavation						
2426	Upper P., Michigan	swamp forest	organic soils	tree	excavation						
2427	Vancouver Island,	temperate evergreen		tree	excavated						
2428	Vancouver Island,	temperate evergreen	silty loam, on gravely silty	tree	excavated						
2429	Nine-state, Hokkaido,	temperate broadleaf	humus loam	tree	excavation						
2430	Nine-state, Hokkaido,	temperate broadleaf	humus loam	tree	excavation						
2431	Israel, Negev desert, duns	arid desert	dune sand	shrub	excavation						
2432	Death Valley, California, USA	subtropical semi-desert	sand to silt	forb		annual	36.5323	-116.9325	Si		
2433	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
2434	Sweedish Lapland	tundra		forb	excavation						
2435	Sweedish Lapland	tundra		forb	excavation						
2436	Nine-state, Hokkaido,	temperate broadleaf	humus loam	tree	excavation						
2437										1	
2438	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
2439	Illinoise	temperate deciduous	brown silt loam	herb	excavation						
2440	Near Prueblo, Colorado	Sandhills Subclimax	dune sand	herb	excavation						
2441	near Santiago,	Mediterrane an, Chilean	compact, hard, clay-sand-gravel-	sclerophyllous shrubs	excavation						
2442	outside Panama,	seasonal-dry tropical	Ancon clay with ≥ 25% clay and ≥	liana	soil coring						
2443	Medicine Bowel Range,	alpine tundra	stony scree	legume forb	exavation						
2444	Medicine Bowel Range,	alpine tundra	stony scree	legume forb	exavation						
2445				legumous forb	excavation						
2446			brown earth	legumous forb	excavation						
2447	C. Kansas, US	crop land		grass	soil coring						
2448	N. of Montpellier,	subhumid Mediterrane	silty deep alluvial fluvisols,	grass	trenchwall to						
2449	Chilanga, S. Zambia	subtropical dry forest	loam over limestone	shrub	excavation						
2450	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
2451	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
2452	Vancouver Island,	temperate evergreen		tree	excavated						
2453	Vancouver Island,	temperate evergreen	silty loam, on gravely silty	tree	excavated						
2454	Vancouver Island,	temperate evergreen	stony (40%)sandy loam or	tree	hydraulicexcavatio						
2455	Vancouver Island,	temperate evergreen	stony (20%) fine sand to loamy	tree	hydraulicexcavatio						
2456	Vancouver Island,	temperate evergreen	1.2m loamy sand over	tree	hydraulicexcavatio						
2457	Nine-state, Hokkaido,	temperate broadleaf	loam	tree	excavation						
2458										1	
2459	Arizona	Stream bank	NR	Herbaceous perennial: Clonal graminoid	Excavation					1	
2460	Iowa	Marsh	NR	Herbaceous perennial: Clonal graminoid	Excavation					1	

	H	I	J	K	L	M	N	O	P	Q	R
1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2461										1	
2462	Pampas, Argentin A	temperate steppe	silty loam	grass	soil coring						
2463	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay, poorly	tree	excavation						
2464	near Kitwe, N. Zambia	subtropical dry forest	deep sandy clay	tree	excavation						
2465	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
2466	near Kitwe, N. Zambia	subtropical dry forest	shallow sandy clay	tree	excavation						
2467	SW France	Mediterran pine	eaolian sand /Entic to Densic	shrub	coring						
2468	SW France	Mediterran pine	eaolian sand /Entic to Densic	shrub	coring						
2469	Central Portugal	Mediterrane an shrubland	humic cambissols	thorny shrub	excavation						
2470	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2471	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
2472	E. Nebraska	Prarie with planted and	Cass sandy loam	tree	excavation						
2473	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2474	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2475	Cent-Eastern Edwards	savanna and woodland	shallow, calcareou	tree	caveexposure						
2476	Oklahoma Pan Handle,	temperate steppe	Richfield siltloam	tree	excavation						
2477	E. Nebraska	Prarie with planted and	Cass sandy loam	tree	excavation						
2478	E. Nebraska	Prarie with planted and	Cass silty clayloam	tree	excavation						
2479	E. Nebraska	Prarie with planted and	Sarpy very fine sandy loam	tree	excavation						
2480	E. Nebraska	Prarie with planted and	Wabash siltloam	tree	excavation						
2481										1	
2482	Hanford, SC Washington	semi-arid shrub-steppe	sandy-loam to silty loam	shrub	excavation						
2483	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (clonal)	excavation						
2484	eastern Ontario,	Boreal forest	humo-ferricpodzol in fine	shrub (clonal)	excavation						
2485	Sweedish Lapland	tundra		shrub	excavation						
2486	Prairies of E. Nebraska	prairie	loess	herb	excavation						
2487	Prairies of E. Nebraska	prairie	loess	herb	excavation						
2488	Emas (Pirassununga	Campo Cerrado (tree	deep, homogeneous	herb	deep wells (shafts)						
2489	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb / vine	trenchwall						
2490	Boise River Watershed, Idaho, USA	bunchgrass prairie	coarse, granitic	forb		perennial	43.8207	-117.026	Sa		
2491										1	
2492	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
2493	N. Illinoise near Lake	temperate riparian	black muck or partially	herb	excavation						
2494	Boise, Idaho	semi-arid shrub-steppe	loose coarse granite, high	forb	trenchwall						
2495	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
2496	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
2497	Colombian Amazonia,	lowland tropical	silt loam /loamy sand in A, clay	tree	excavation, soil						
2498	Podocarpus Nat Park, S	tropical montane	0.15m O, on >0.9m mineral	small tree	excavation						
2499										1	
2500	near Peru, E. Nebraska	chaparral	loess	woody vine	excavation						
2501										1	
2502	E of Cape Town, South	mountain fynbos,	loamy sand, with quartzite	geophyte	excavation						
2503	Podocarpus Nat Park, S	tropical elfin forest	0.3m O, on 0.4m mineral soil	small tree	excavation						
2504	Pusa, Bihar, NE India	agrisivicultur e: trees	sandy loam	tree	soil cores+						
2505	Western Cascade Mountains, Oregon, USA	temperate conifer forest	deep, originated from volcanic ash	shrub/subshrub		perennial	44.16	-122.34	Lo		
2506										1	
2507	near Pullman, SE	High Prairie	fine silt-loam, can be very	herb	excavation						
2508	SE Washington, USA	palouse prairie	silt loam	forb		perennial	46.5	-117.1	SiLo		
2509											
2510											
2511	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
2512	near Colorado Springs,	shortgrass prairie	very compact and hard, light-	evergreen, herb	excavation						
2513	Mojave Desert,		granite alluvium	small tree	excavation						
2514	Mojave Desert, California, USA	temperate semi-desert	decomposed granite	shrub		perennial	35.011	-115.4734	Sa		
2515	San Gabrial / Bernardino	Chaparral	loose coarse sand (0.15m),	subshrub	excavation						
2516	California, USA	mediterranean sclerophyllous shrubland	sand over weathered granite	semi-shrub		perennial	34.2	-117.76	Sa		
2517	E. Nebraska	Prarie with planted and	Sogn stony loam	tree	excavation						

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1	**Location**	**Biome**	**Soil Type**	**Growth form**	**Method**	**Life span**	**Lat**	**Long**	**USDA soil texture**	**Native**	**GW Use**
2518	near Alice, S. Texas	savanna parkland	sandy loam soil 2m deep	understory shrub	1.5mcorning						
2519	near Alice, S. Texas	savanna parkland	sandy loam over claypan	understory shrub	1.5mcorning						
2520	Nhecolândia Pantanal,	Tropical savanna	sandy Spodosols, 94-	tree	excavation						
2521	off Lake Mendota,	temperate broadleaf	peat soil	grass	excavation						
2522	Morogoro, E. Tanzania	subtropical dry forest	sandy loams, poor in Org and	grass	soil coringto 1m						
2523	Nyabeda, western	grass savanna	very fine, kaolinitic, 73%	grass	soil coringto 1.8m						
2524	SE North Dakota	crop land	Fossum sandy loam	grass	excavation						
2525	SE North Dakota	crop land	Hamar sandy loam	grass	excavation						
2526	SE North Dakota	crop land	Fossum sandy loam	grass	excavation						
2527	SE North Dakota	crop land	Fossum loamy fine sand	grass	excavation						
2528	SE North Dakota	crop land	Hecla loamy sand	grass	excavation						
2529	SE North Dakota	crop land	Fossum fine sandy loam	grass	excavation						
2530	SE North Dakota	crop land	Hecla loamy sand	grass	excavation						
2531	SE North Dakota	crop land	Hecla loamy fine sand	grass	excavation						
2532	SE North Dakota	crop land	Hecla loamy fine sand	grass	excavation						
2533	SE North Dakota	crop land	Hecla loamy fine sand	grass	excavation						
2534	Mt. Kenya area, C Kenya	crop land	clay HaplicNitisols derived	grass	trenchwall						
2535	Mt. Kenya area, C Kenya	crop land	clay rich VitricGleysols derived	grass	trenchwall						
2536	Chihuahuan Desert, New	xeric shrubland	fine sandy loamy	herb	excavation						
2537	Chihuahuan Desert, New	xeric shrubland	coarse-loamy	herb	excavation						
2538	Chilanga, S. Zambia	subtropical dry forest	sandy loam overlinestone	shrub	excavation						
2539	Yulin, Shaanxi Province, C.	dry steppe	sandy loam (1.2m rain	tree	soil coring						
2540	Kalahari sandveld, E.	grass/tree savanna	loamy fine sand	tree	lithiumchloride						
2541	near Alice, S. Texas	savanna parkland	sandy loam over claypan	small thorny shrub	1.5mcorning						
2542	near Alice, S. Texas	savanna parkland	sandy loam soil 2m deep	small thorny shrub	1.5mcorning						
2543	Arizona	River floodplain	NR		Excavation					1	
2544	Judaean Desert, Israel	arid desert		shrub							
2545	Namaqualand , South Africa		sandy	shrub	excavation						

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