



# Revised Vegetation Classification for Mount Rainier, North Cascades, and Olympic National Parks

## *Environmental Setting Tables for Plant Associations and Wetland Alliances*



*Abies amabilis* - *Tsuga heterophylla* / *Oplopanax horridus* Swamp Forest along the North Fork of the Skokomish River at Olympic National Park.

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## Summary

These tables include basic environmental data for all upland associations and all wetland associations that were included in Ramm-Granberg et al. (2021a). Temperature and precipitation data are based on PRISM 30-year normals (PRISM Climate Group 2019). Plot totals may vary slightly from those reported in synoptic tables (Ramm-Granberg et al. 2021b) if individual plots had incomplete species or environmental data. Section A includes tables for upland associations and Section B covers the wetland alliances.

# A. Environmental tables for plant associations of Mount Rainier, North Cascades, and Olympic National Parks

## 1.B.2.Nb Rocky Mountain Forest & Woodland

**Table A-1.** Environmental table for associations in 1.B.2.Nb Rocky Mountain Forest & Woodland. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
ABILAS-(CALNOO)/VACSCO/VALSIT	8	1788 (1694 - 2011)	17 (7 - 36)	-0.1 (-2.3 - 0.9)	16.8 (15.9 - 17.7)	298 (264 - 441)	45 (37 - 61)
ABILAS-(PICENG)/RHOALB	11	1764 (1570 - 1884)	19 (9 - 30)	-2.0 (-3.7 - -0.4)	18.2 (17.3 - 19.4)	225 (205 - 250)	40 (33 - 45)
ABILAS/RHOALB/RUBLAS	23	1541 (1339 - 1747)	22 (10 - 33)	1.3 (-0.2 - 3.4)	17.4 (15.6 - 19.2)	296 (232 - 432)	42 (23 - 60)
ABILAS/VACMEM	32	1363 (779 - 1747)	27 (12 - 37)	-0.1 (-1.8 - 0.8)	20.3 (18.6 - 25)	219 (199 - 372)	34 (26 - 42)
ABILAS/VACMEM/LUPARC	22	1645 (1500 - 1801)	25 (11 - 35)	0.5 (-1.6 - 1.8)	17.4 (14.8 - 19.4)	297 (215 - 436)	38 (26 - 64)
ABILAS-PICENG/VACSCO	5	1908 (1661 - 1995)	25 (4 - 31)	-2.2 (-3.3 - -0.1)	17.5 (17.2 - 17.7)	244 (220 - 280)	45 (38 - 48)
ABILAS-PINALB/JUNCOM	15	2068 (1942 - 2219)	38 (31 - 42)	-2.5 (-4.0 - -1.2)	17.2 (16.4 - 18.3)	237 (205 - 292)	38 (35 - 48)
ABILAS-PSEMEN/ACECIR	13	1017 (684 - 1313)	25 (8 - 38)	0.7 (-0.4 - 1.5)	21.4 (19.3 - 24.4)	270 (257 - 296)	40 (29 - 49)
ACEMAC/ACECIR-PAXMYR-(CORCOR)	23	841 (518 - 970)	26 (14 - 36)	0.7 (0.2 - 2.7)	22.9 (20.7 - 25.2)	290 (243 - 352)	41 (26 - 62)
ACEMAC/RUBPAR/MAIRAC	9	711 (496 - 922)	16 (12 - 27)	1.2 (0.8 - 1.8)	25 (23.4 - 27.8)	254 (199 - 285)	26 (20 - 41)
ACEMAC/SYMALB	12	448 (360 - 781)	10 (2 - 24)	1.4 (0.8 - 2.0)	27.8 (25.4 - 29.3)	196 (166 - 236)	22 (16 - 25)
LARLYA/VACDEL-CASMER	42	1937 (1763 - 2078)	21 (6 - 35)	-2.2 (-2.9 - -1)	17.2 (16.8 - 18.5)	253 (213 - 298)	44 (36 - 54)
LARLYA/VACSCO/LUZGLA	12	2062 (1981 - 2150)	17 (12 - 40)	-3.6 (-4 - -2.8)	17 (16.7 - 17.3)	212 (204 - 259)	39 (36 - 51)
PINALB/CALRUB	2	2096 (1867 - 2175)	34 (31 - 39)	-3.7 (-4 - -3.4)	17.2 (17.1 - 17.5)	219 (208 - 277)	37 (35 - 38)
PINALB/FESVIR	9	2022 (1854 - 2198)	24 (16 - 33)	-3.3 (-4 - -0.7)	17.2 (16.8 - 18.3)	224 (206 - 271)	39 (35 - 46)
PINALB-ABILAS/VACSCO/LUZGLA	8	2096 (2024 - 2172)	30 (25 - 38)	-3.8 (-4 - -2.9)	17.2 (17 - 17.3)	216 (206 - 233)	38 (36 - 43)
PINCON/CALRUB	4	831 (665 - 946)	19 (13 - 20)	1.4 (1.0 - 2.0)	23.7 (22.8 - 24.4)	218 (207 - 239)	51 (36 - 53)
PINCON/VACMEM	7	1298 (899 - 1529)	14 (3 - 37)	0.5 (-0.3 - 0.9)	21 (19.7 - 24.1)	210 (202 - 252)	35 (26 - 37)
PSEMEN-(ABIGRA)/ACECIR-PAXMYR	13	680 (377 - 997)	12 (2 - 30)	0.8 (0.2 - 2.1)	25 (22.3 - 29.4)	276 (167 - 317)	26 (16 - 47)

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
PSEMEN-(PINPON)/SYMALB	6	380 (348 - 458)	7 (1 - 17)	1.8 (1.4 - 2.3)	28.7 (27.7 - 29.6)	173 (166 - 213)	17 (16 - 23)
PSEMEN-(TSUHET)/ACECIR-PAXMYR	13	679 (593 - 979)	19 (5 - 29)	0.9 (0.3 - 1.2)	23.9 (22.1 - 26.9)	254 (215 - 282)	39 (23 - 50)
PSEMEN/CALRUB	28	580 (377 - 1436)	27 (6 - 37)	1.3 (-0.5 - 2.0)	27.4 (20.4 - 29.3)	193 (164 - 211)	21 (16 - 36)
PSEMEN/HOLDIS/CALRUB	25	604 (419 - 1033)	26 (13 - 36)	1.6 (0.8 - 2.7)	24.7 (21.8 - 28.3)	209 (169 - 290)	38 (17 - 57)
PSEMEN/PAXMYR-SPIBET	17	1003 (653 - 1472)	25 (10 - 36)	0.7 (-0.7 - 1.4)	22.9 (20.2 - 26.4)	244 (199 - 291)	26 (25 - 41)
PSEMEN/VACMEM	22	1044 (688 - 1576)	27 (9 - 34)	0.4 (-1.3 - 1.2)	22.8 (19.9 - 26.6)	225 (197 - 281)	27 (24 - 35)
PSEMEN-PINCON/ARCNEV	12	1061 (544 - 1364)	17 (3 - 30)	0.6 (-0.3 - 1.4)	23 (20.3 - 27.3)	210 (186 - 316)	27 (24 - 43)
PSEMEN-PINPON/ARCNEV-PAXMYR	18	671 (374 - 1264)	20 (2 - 43)	0.9 (-0.1 - 1.9)	26.8 (21.6 - 29.1)	204 (165 - 271)	25 (16 - 39)
TSUHET-(PSEMEN)/TIATRI-GYMDRY	28	666 (505 - 1107)	6 (1 - 28)	4.1 (0.7 - 5.7)	22 (20.9 - 24)	260 (203 - 560)	42 (27 - 73)

### 1.B.2.Nd Vancouverian Forest & Woodland

**Table A-2.** Environmental table for associations in 1.B.2.Nd Vancouverian Forest & Woodland. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
ABIAMA-(PSEMEN)/ACHTRI-TIATRI	18	1244 (811 - 1439)	26 (6 - 38)	1.6 (0.7 - 3.8)	19.5 (17.9 - 23.1)	316 (241 - 427)	44 (29 - 78)
ABIAMA-(PSEMEN-ABIPRO)/VACMEM/XERTEN	16	1411 (1245 - 1619)	28 (7 - 37)	2 (0.6 - 3.9)	19 (17 - 20.7)	332 (255 - 440)	45 (38 - 85)
ABIAMA-(TSUHET)/VACMEM/ORTSEC	49	1289 (832 - 1540)	19 (5 - 33)	0.4 (-1.6 - 2.9)	20 (16.8 - 24.5)	300 (203 - 449)	40 (26 - 64)
ABIAMA-(TSUHET)/VACMEM-VACALA	24	1295 (1062 - 1496)	23 (8 - 41)	1.3 (0.5 - 3.6)	18.8 (17.7 - 21)	390 (260 - 542)	47 (35 - 85)
ABIAMA/MENFER	6	1351 (1010 - 1514)	17 (7 - 25)	0 (-0.4 - 2.4)	20.5 (16.4 - 22.9)	247 (240 - 312)	34 (28 - 46)
ABIAMA/POLMUN	20	531 (400 - 1044)	24 (4 - 40)	5.3 (2.2 - 7)	22.2 (20.3 - 23.2)	512 (225 - 604)	68 (43 - 92)
ABIAMA/RHOALB	9	1518 (1236 - 1632)	23 (8 - 35)	0.8 (-0.1 - 2.2)	18 (17.1 - 19.8)	290 (254 - 439)	43 (30 - 58)
ABIAMA-PSEMEN/ACHTRI	23	1008 (709 - 1332)	25 (8 - 39)	3.2 (0.9 - 5.5)	21 (19 - 24.6)	294 (237 - 595)	41 (26 - 74)
ABIAMA-TSUHET/(ORTSEC-CHIMEN)	72	1144 (760 - 1407)	21 (8 - 36)	1.5 (-0.2 - 5)	20.6 (18.4 - 22.8)	290 (240 - 369)	40 (28 - 70)
ABIAMA-TSUHET/RUBPED-TIATRI	35	919 (676 - 1360)	18 (2 - 33)	2.7 (0.5 - 4)	20.9 (17.8 - 23)	274 (218 - 365)	56 (28 - 76)
ABIAMA-TSUMER/MENFER	13	1392 (1047 - 1556)	27 (11 - 38)	1 (0.3 - 2)	18.5 (17.8 - 21.2)	342 (283 - 423)	63 (43 - 81)

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
ABIAMA-TSUMER/STRLAN	10	1455 (1224 - 1579)	29 (11 - 37)	1.5 (-0.5 - 2.7)	18.3 (17.6 - 19.6)	341 (234 - 504)	68 (36 - 85)
ABIAMA-TSUMER/VACMEM/RUBLAS	44	1490 (1192 - 1664)	24 (5 - 38)	1 (-0.3 - 3)	18 (16.5 - 19.2)	377 (268 - 645)	53 (31 - 86)
ABILAS-(ABIAMA)/VACMEM/XERTEN	6	1426 (1304 - 1618)	18 (11 - 31)	2.2 (1.3 - 2.4)	16.9 (16.2 - 17.7)	362 (290 - 493)	47 (30 - 66)
ABILAS-(CALNOO)	15	1952 (1709 - 2176)	35 (7 - 53)	-0.9 (-2.5 - 0.7)	15.5 (14.6 - 17.4)	327 (262 - 470)	48 (25 - 76)
ABILAS-(PINCON)/JUNCOM-LOMMAR	8	1601 (1527 - 1886)	31 (22 - 34)	1.1 (-0.3 - 3.1)	17.2 (14.7 - 18.4)	275 (219 - 321)	26 (23 - 33)
ABILAS-(PINCON)/LUPARC	6	1719 (1512 - 1897)	22 (13 - 27)	1.3 (-0.4 - 1.6)	17 (14.3 - 17.5)	282 (249 - 336)	25 (24 - 41)
ABILAS/VACDEL	44	1700 (1553 - 1924)	19 (5 - 36)	0.1 (-2.2 - 1.3)	17.4 (15.9 - 18.6)	307 (216 - 456)	46 (29 - 72)
ABILAS/VALSIT-RUBLAS	46	1622 (1375 - 1884)	22 (9 - 36)	0.5 (-1.2 - 2.7)	17.1 (15.5 - 18.8)	327 (237 - 531)	40 (24 - 63)
ABILAS-ABIAMA/VACMEM/VALSIT	41	1590 (1215 - 1764)	16 (10 - 28)	-0.8 (-2.2 - 0.9)	18.1 (17.2 - 21.3)	247 (206 - 321)	40 (32 - 56)
ABILAS-PSEMEN/MAHNER	8	1439 (1312 - 1486)	31 (26 - 42)	2.8 (2.1 - 3.2)	18.2 (16.4 - 18.8)	313 (228 - 433)	38 (27 - 56)
ABILAS-TSUMER/FESVIR	5	1922 (1757 - 2059)	23 (8 - 33)	-0.4 (-1 - 0.6)	16.4 (15.8 - 17.2)	295 (273 - 404)	46 (41 - 49)
ACEMAC-PSEMEN/ACECIR/POLMUN	29	213 (138 - 555)	17 (1 - 33)	4.8 (3.5 - 6.5)	23.7 (21 - 24.8)	287 (212 - 513)	42 (20 - 57)
ALNRUB/POLMUN	19	30 (13 - 437)	22 (2 - 29)	8.5 (6.1 - 8.8)	17.7 (16.4 - 22)	374 (345 - 405)	53 (46 - 56)
BETPAP-(THUPLI)/ACECIR/MAHNER	16	562 (173 - 802)	19 (3 - 30)	1.5 (0.9 - 4.7)	24.5 (23.3 - 25.3)	219 (178 - 303)	46 (36 - 58)
CALNOO-(ACECIR-PAXMYR)	6	1166 (966 - 1484)	33 (21 - 37)	0.1 (-0.7 - 1.3)	19.7 (17.8 - 20.6)	373 (273 - 462)	66 (38 - 80)
PICSIT/GAUSHA	37	71 (13 - 107)	5 (0 - 16)	8.4 (8.3 - 8.7)	18.3 (15.7 - 19.5)	381 (359 - 397)	54 (53 - 59)
PICSIT/MAIDIL	3	9 (7 - 13)	2 (2 - 5)	8.4 (8.4 - 8.4)	17.5 (17 - 17.7)	394 (394 - 394)	56 (56 - 56)
PICSIT/VACOVAT	8	23 (10 - 41)	3 (1 - 7)	8.2 (8.1 - 8.5)	18.2 (16 - 19.6)	401 (338 - 415)	57 (56 - 59)
PICSIT-TSUHET/POLMUN	19	49 (12 - 100)	7 (1 - 16)	8.4 (8 - 8.6)	17.7 (15.8 - 21.8)	378 (333 - 418)	55 (53 - 60)
PICSIT-TSUHET/POMU-OXAORE	27	224 (82 - 377)	5 (0 - 23)	7.1 (6.2 - 7.6)	22.4 (21.3 - 24)	530 (439 - 588)	63 (53 - 73)
PINCON-PSEMEN/GAUSHA	43	625 (345 - 793)	9 (3 - 33)	3.7 (2 - 6.4)	23.8 (20.3 - 25.9)	289 (237 - 355)	34 (27 - 47)
PSEMEN-(PINCON)/ARCUVA/RACCAN	34	737 (504 - 1408)	20 (3 - 40)	2.1 (1.4 - 4)	24.1 (18 - 25.9)	261 (202 - 337)	35 (26 - 45)
PSEMEN-(THUPLI-ABIGRA)/VACMEM	21	875 (586 - 1268)	26 (11 - 39)	1.6 (1.1 - 2.4)	23.1 (19.2 - 24.3)	290 (235 - 388)	42 (33 - 52)
PSEMEN/ACECIR-(HOLDIS)	13	898 (308 - 1193)	33 (23 - 44)	2.6 (0.8 - 4.6)	22.4 (17.8 - 23.9)	284 (214 - 350)	41 (26 - 65)
PSEMEN/ACECIR/MAHNER	35	680 (508 - 925)	24 (9 - 37)	1.6 (0.9 - 2.3)	24 (22.7 - 25.6)	233 (190 - 295)	41 (27 - 57)
PSEMEN/GAUSHA-HOLDIS	45	394 (216 - 642)	21 (7 - 39)	6 (5.4 - 6.5)	22.1 (22 - 22.7)	283 (253 - 304)	26 (25 - 31)
PSEMEN/GAUSHA-MAHNER/POLMUN	14	295 (161 - 792)	17 (10 - 36)	6.3 (4.3 - 6.9)	22.6 (21.1 - 23)	256 (229 - 324)	22 (20 - 31)

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
PSEMEN/GAUSHA-VACPAR	22	736 (405 - 1046)	28 (19 - 41)	4.5 (2.3 - 5.6)	21.5 (19.3 - 25.7)	286 (209 - 337)	27 (24 - 48)
PSEMEN/HOLDIS-ROSGYM/FESOCC	50	670 (339 - 1306)	29 (11 - 41)	5.6 (3 - 6.3)	21.3 (18.2 - 22.4)	289 (238 - 343)	26 (21 - 30)
PSEMEN/MAHNER/ACHTRI	13	922 (661 - 1370)	29 (10 - 39)	2.9 (1.3 - 5.5)	22.4 (19.3 - 24.5)	276 (252 - 288)	29 (26 - 38)
PSEMEN-TSUHET-(ALNRUB)/RUBSPE	7	410 (185 - 618)	14 (2 - 33)	5.7 (4.7 - 7.1)	22.5 (20.8 - 23.4)	523 (246 - 647)	72 (35 - 89)
PSEMEN-TSUHET/(ACECIR)/POLMUN	23	390 (175 - 762)	20 (2 - 41)	5.3 (3 - 6.5)	22.4 (21.7 - 24.1)	309 (228 - 501)	42 (22 - 61)
PSEMEN-TSUHET/ACHTRI	39	802 (503 - 1124)	15 (3 - 34)	3.8 (2.5 - 6.4)	23.8 (17.9 - 26.8)	284 (238 - 360)	27 (25 - 37)
PSEMEN-TSUHET/GAUSHA/POLMUN	48	355 (149 - 708)	26 (2 - 43)	6.4 (4.5 - 7)	22.2 (20.9 - 24.5)	265 (217 - 591)	31 (25 - 71)
PSEMEN-TSUHET/GAUSHA-HOLDIS	19	535 (489 - 1165)	29 (12 - 34)	5.6 (4.1 - 6)	22.3 (19.4 - 22.8)	293 (227 - 308)	26 (24 - 27)
PSEMEN-TSUHET/GAUSHA-MAHNER	51	696 (424 - 1095)	26 (4 - 36)	4.1 (1.9 - 6)	23.3 (19.3 - 26.7)	283 (189 - 356)	28 (24 - 67)
PSEMEN-TSUHET/GAUSHA-VACPAR	64	666 (179 - 1048)	24 (2 - 39)	4.8 (2 - 6.3)	21.8 (19.6 - 24.9)	299 (217 - 393)	34 (24 - 56)
PSEMEN-TSUHET/MAHNER	78	705 (494 - 948)	19 (5 - 35)	1.6 (0.8 - 4.6)	24.1 (21.4 - 26.2)	251 (188 - 313)	39 (25 - 55)
PSEMEN-TSUHET/MANE-POLMUN	72	680 (225 - 970)	26 (2 - 41)	4.4 (1.9 - 6.6)	22.2 (20.7 - 23.4)	264 (208 - 415)	38 (26 - 54)
PSEMEN-TSUHET/POLMUN-OXAORE	9	615 (342 - 736)	4 (2 - 19)	4.4 (4.3 - 7)	22.8 (22.3 - 23.3)	266 (254 - 598)	39 (38 - 69)
PSEMEN-TSUHET/RHOMAC	19	644 (413 - 1034)	19 (5 - 27)	4.9 (3.9 - 6.1)	21.1 (18.9 - 22.2)	266 (264 - 293)	36 (36 - 41)
PSEMEN-TSUHET/VACALA/XERTEN	7	1175 (893 - 1371)	28 (6 - 39)	2.6 (1.7 - 3.7)	20.7 (19.2 - 23.6)	297 (272 - 363)	40 (29 - 66)
THUPLI-TSUHET/VACOVAT-GAUSHA	58	33 (13 - 59)	1 (0 - 7)	8.3 (8.2 - 8.5)	17.9 (16.5 - 19.3)	388 (339 - 414)	57 (55 - 59)
TSUHET-(PSEMEN)/VACALA/POLMUN	15	358 (211 - 821)	29 (7 - 44)	6.3 (4.3 - 7.1)	22.2 (20.4 - 24.7)	581 (396 - 671)	66 (56 - 87)
TSUHET-(ABIAMA)/GAUSHA/BLESPI	2	67 (55 - 71)	2 (1 - 12)	8.2 (8 - 8.4)	19.6 (17.7 - 21.8)	390 (382 - 417)	54 (54 - 56)
TSUHET-(PSEMEN)/VACALA-MAHNER-(GAUSHA)	21	668 (310 - 992)	21 (10 - 39)	4.1 (2 - 7)	23.5 (19.9 - 25.8)	364 (285 - 604)	56 (26 - 75)
TSUHET-(PSEMEN)/VACALA/CORUNA	30	784 (482 - 1154)	18 (2 - 38)	3.3 (0.4 - 5.6)	21.2 (19.1 - 24.6)	316 (228 - 550)	43 (31 - 71)
TSUHET-(PSEMEN-THUPLI)/POLMUN-ATHFIL	84	561 (289 - 835)	19 (2 - 37)	4.4 (1.5 - 6.6)	22.2 (20.9 - 25.5)	315 (219 - 672)	53 (28 - 92)
TSUHET/GAUSHA/POLMUN-BLESPI	10	56 (18 - 86)	7 (1 - 16)	8.5 (8.2 - 8.6)	18.5 (17 - 19.6)	374 (367 - 402)	54 (53 - 57)
TSUHET/POLMUN-BLESPI	14	681 (274 - 1040)	29 (3 - 36)	4.4 (2.6 - 7.2)	21.8 (20.5 - 22.6)	230 (217 - 595)	59 (47 - 82)
TSUHET/POLMUN-OXAORE	11	75 (7 - 405)	6 (0 - 24)	8.2 (5.9 - 8.7)	21 (18.1 - 22.5)	418 (358 - 596)	57 (53 - 76)
TSUHET/VACALA/OXAORE	11	149 (6 - 283)	2 (0 - 15)	7.3 (7 - 8.7)	22.5 (18.4 - 23.6)	465 (359 - 520)	56 (53 - 67)
TSUHET-ABIAMA-(PSEMEN)/VACALA	77	997 (619 - 1236)	19 (3 - 36)	2.4 (0.7 - 5.5)	20.8 (18.9 - 23.9)	333 (235 - 590)	43 (29 - 80)
TSUHET-ABIAMA-(THUPLI)/VACALA/BLESPI	10	887 (276 - 1144)	22 (5 - 36)	3.9 (1.4 - 7.1)	21 (18.9 - 23.8)	344 (224 - 661)	74 (40 - 91)

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
TSUHET-ABIAMA/OXAORE-BLESPI	5	482 (390 - 667)	22 (10 - 38)	5.4 (5.1 - 6.2)	22.1 (21.7 - 23.2)	590 (466 - 676)	68 (53 - 82)
TSUHET-ABIAMA/VACALA/TIATRI	32	862 (338 - 1226)	23 (2 - 35)	3.7 (0.9 - 5.8)	20.8 (18.6 - 23.2)	394 (254 - 680)	58 (33 - 93)
TSUHET-ABIAMA/VACALA/RUBPED	44	920 (550 - 1287)	14 (3 - 31)	2.3 (0.7 - 5.4)	20.9 (19 - 24.1)	305 (221 - 528)	49 (34 - 78)
TSUHET-ABIAMA-PSEMEN/MAHNER	32	920 (595 - 1215)	20 (7 - 36)	2.1 (0.7 - 3.7)	22.1 (19.1 - 25.2)	281 (229 - 373)	40 (26 - 52)
TSUHET-ABIAMA-PSEMEN/GAUSHA	18	867 (573 - 1067)	14 (5 - 37)	3.7 (2.6 - 5.9)	22.1 (19.8 - 24.6)	311 (263 - 529)	39 (26 - 53)
TSUHET-PSEMEN/MAHNER-CHIMEN	75	856 (519 - 1321)	23 (6 - 38)	2.9 (0.6 - 5.9)	21.8 (18.9 - 23.9)	275 (211 - 346)	39 (26 - 67)
TSUHET-PSEMEN/VACALA/OXAORE	9	317 (228 - 446)	6 (1 - 18)	6.9 (5.9 - 7.1)	22.2 (21.1 - 23.7)	558 (505 - 609)	64 (62 - 70)
TSUHET-THUPLI/GAUSHA/BLESPI	11	44 (9 - 57)	6 (0 - 13)	8.4 (8.1 - 8.7)	18.5 (16.8 - 19.4)	386 (340 - 412)	56 (53 - 59)
TSUMER	7	1797 (1498 - 1939)	35 (14 - 61)	0.1 (-1.5 - 2.2)	16.6 (14.8 - 17.7)	398 (306 - 578)	52 (38 - 77)
TSUMER/PHYEMP-VACDEL	120	1536 (1107 - 1731)	25 (7 - 42)	0.7 (-0.3 - 4.2)	17.6 (16.1 - 18.9)	454 (294 - 808)	78 (45 - 104)
TSUMER-ABIAMA/RHOALB	77	1529 (1312 - 1725)	23 (8 - 38)	0.9 (-1.3 - 2.7)	18.1 (16.4 - 19.5)	301 (213 - 462)	44 (29 - 83)
TSUMER-ABIAMA/VACALA/RUBPED	34	1227 (947 - 1469)	18 (5 - 34)	2.1 (0.8 - 4.9)	18.8 (17.2 - 20.4)	393 (279 - 746)	80 (35 - 103)
TSUMER-ABIAMA/VACMEM/XERTEN	4	1533 (1450 - 1738)	26 (22 - 43)	1.9 (0.3 - 2.2)	16.7 (16.4 - 17.5)	504 (296 - 654)	68 (41 - 86)
TSUMER-ABIAMA/VACMEM/VALSIT	4	1511 (1474 - 1539)	35 (30 - 38)	1.7 (0.8 - 3.3)	18 (16.7 - 18.8)	479 (393 - 675)	76 (55 - 91)
TSUMER-ABILAS/VACDEL-PHYEMP	45	1656 (1325 - 1847)	22 (7 - 39)	0.7 (-1.3 - 2.4)	17.2 (15.8 - 18.6)	389 (284 - 675)	60 (30 - 91)

### 1.B.3.Nc Rocky Mountain-Great Basin Montane Flooded & Swamp Forest

**Table A-3.** Environmental table for associations in 1.B.3.Nc Rocky Mountain-Great Basin Montane Flooded & Swamp Forest. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
PICENG/EQUARV	16	1143 (791 - 1359)	1 (0 - 3)	-0.9 (-1.8 - 0.3)	23.9 (20.4 - 26.7)	101 (38 - 201)	35 (12 - 45)
POPBAL/CORSER	36	788 (464 - 1125)	4 (0 - 12)	0.6 (-1.4 - 2.2)	25.4 (22.2 - 28.7)	165 (73 - 295)	29 (11 - 52)
THUPLI-TSUHET/OPLHOR	46	902 (657 - 1200)	5 (1 - 13)	0.2 (-1.7 - 2)	25 (23 - 27.1)	159 (67 - 293)	33 (12 - 54)



### 1.B.3.Ng Vancouverian Flooded & Swamp Forest

**Table A-4.** Environmental table for associations in 1.B.3.Ng Vancouverian Flooded & Swamp Forest. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
ABIAMA/RUBSPE-VACALA	15	671 (311 - 1314)	9 (0 - 21)	3.5 (-0.2 - 7)	22.2 (19.4 - 24.6)	434 (262 - 680)	61 (26 - 91)
ABIAMA-TSUHET/OPLHOR	57	896 (684 - 1168)	11 (1 - 29)	1.9 (0 - 4.5)	21.7 (19.2 - 24.3)	312 (221 - 449)	46 (22 - 68)
ACEMAC/MAISTE	3	767 (645 - 860)	18 (11 - 28)	1.8 (1.6 - 2)	23.1 (22.7 - 23.4)	286 (276 - 296)	41 (40 - 42)
ACEMAC/OXAORE	18	214 (59 - 403)	5 (0 - 13)	6.9 (5.2 - 7.8)	23.2 (21.9 - 24.4)	518 (393 - 674)	62 (49 - 82)
ACEMAC/POLMUN-TOLMEN	14	339 (92 - 598)	11 (2 - 25)	5.9 (5 - 6.6)	22.5 (21.4 - 23.1)	345 (210 - 616)	36 (20 - 76)
ACEMAC/RUBSPE	17	296 (80 - 519)	13 (2 - 33)	4.8 (2.9 - 7.3)	22.7 (21.5 - 24.5)	370 (256 - 493)	52 (31 - 66)
ALNRUB/ACECIR/CLASIB	19	515 (100 - 829)	6 (0 - 26)	4.5 (2 - 7.4)	23.5 (21.5 - 25.8)	372 (229 - 543)	45 (18 - 68)
ALNRUB/ALNVIR	7	924 (674 - 1158)	3 (1 - 6)	2.1 (0.7 - 3.6)	22.7 (20.8 - 25.6)	293 (139 - 485)	26 (12 - 42)
ALNRUB/ATHFIL-LYSAME	28	531 (32 - 1049)	1 (0 - 4)	4.5 (1.6 - 8.2)	23 (19.1 - 25.1)	341 (238 - 448)	40 (22 - 60)
ALNRUB/ELYGLA	9	160 (69 - 364)	2 (0 - 5)	7.1 (5.6 - 7.8)	22.8 (21.6 - 23.8)	470 (416 - 532)	56 (34 - 68)
ALNRUB/GLYSTR	10	586 (202 - 1032)	1 (0 - 3)	4.6 (2.9 - 6.5)	23.5 (21.9 - 26.7)	342 (255 - 424)	32 (21 - 46)
ALNRUB/OPLHOR-RUBSPE	11	556 (234 - 759)	10 (0 - 31)	3.8 (0.9 - 6.8)	24.3 (23 - 26.6)	366 (232 - 457)	35 (19 - 58)
ALNRUB/OXAORE	22	188 (6 - 558)	7 (0 - 30)	7.2 (4 - 8.7)	21.8 (17.9 - 23.3)	456 (337 - 588)	58 (35 - 75)
ALNRUB/RUBPAR	1	866 (866 - 866)	5 (5 - 5)	3.1 (3.1 - 3.1)	19.2 (19.2 - 19.2)	490 (490 - 490)	44 (44 - 44)
ALNRUB/RUBSPE	75	363 (18 - 707)	6 (0 - 25)	5 (0.6 - 8.4)	22.6 (18.9 - 25.5)	387 (270 - 519)	52 (27 - 68)
ALNRUB/RUBSPE/CAROBN-LYSAME	8	84 (17 - 175)	1 (0 - 4)	7.8 (7.2 - 8.6)	22.1 (20.1 - 23.1)	414 (346 - 472)	53 (43 - 58)
ALNRUB/RUBSPE/CHRGLE	11	111 (89 - 136)	15 (1 - 36)	7.8 (7.6 - 8.1)	22.5 (21.6 - 23.1)	455 (438 - 474)	59 (57 - 61)
ALNRUB/STACHA-TOLMEN	30	486 (140 - 782)	4 (0 - 9)	4.5 (1.4 - 7.5)	24 (21.6 - 25.7)	398 (254 - 561)	34 (19 - 67)
CALNOO/OPLHOR	6	1353 (1137 - 1485)	27 (15 - 35)	1.9 (1.2 - 2.8)	16.9 (15.9 - 18.3)	365 (295 - 439)	44 (26 - 59)
PICSIT-(ALNRUB)/RUBSPE/POLMUN	9	64 (15 - 197)	13 (1 - 27)	8.2 (6.8 - 8.7)	18.1 (15.6 - 21.9)	408 (364 - 538)	58 (53 - 72)
PICSIT/RUBSPE/CAROBN-LYSAME	39	71 (3 - 211)	5 (0 - 19)	8.2 (6.9 - 9.3)	20.4 (17.2 - 23.6)	368 (232 - 458)	50 (35 - 61)
PICSIT-TSUHET-(ALNRUB)/OPLHOR/POLMUN	5	141 (31 - 268)	17 (2 - 43)	7.7 (7 - 8.4)	21.5 (19.4 - 24.1)	424 (349 - 523)	54 (47 - 60)
POPBAL/CORSER/CAROBN	3	53 (38 - 76)	1 (1 - 2)	8 (7.7 - 8.1)	22.1 (21.7 - 22.9)	425 (414 - 439)	54 (53 - 55)

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
POPBAL-ALNRUB/RUBSPE	12	367 (20 - 832)	3 (1 - 7)	4.4 (0.6 - 8.2)	23.4 (21.9 - 25.6)	287 (184 - 421)	44 (23 - 64)
POPBAL-PICSIT-(ACEMAC)/OXAORE	11	103 (43 - 201)	1 (0 - 5)	7.5 (6.7 - 8.2)	22.5 (21 - 23.1)	466 (400 - 533)	57 (53 - 61)
TSUHET-(PSEMEN)/OPLHOR/POLMUN	15	478 (72 - 975)	25 (1 - 48)	5.3 (2.4 - 7.8)	22.1 (20 - 23.6)	301 (174 - 434)	43 (22 - 62)
TSUHET-(THUPLI-ALNRUB)/LYSAME-ATHFIL	18	605 (138 - 1076)	2 (0 - 6)	4.2 (1.5 - 7.9)	23.2 (21.1 - 25.9)	299 (147 - 429)	37 (20 - 83)
TSUHET-THUPLI/VACOVAL-GAUSHA/LYSAME	50	102 (2 - 402)	4 (1 - 13)	7.9 (5.7 - 9)	20.1 (17.6 - 23.9)	372 (265 - 462)	51 (36 - 60)

## 2.B.2.Na Western North American Grassland & Shrubland

**Table A-5.** Environmental table for associations in 2.B.2.Na Western North American Grassland & Shrubland. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
ARC(NEV,UVA)-PAXMYR/PSESPI	27	997 (502 - 1818)	28 (13 - 38)	0.5 (-1.7 - 1.7)	24.2 (18.6 - 28.7)	217.1 (170 - 290)	25 (17 - 37)
ARCCOL	11	797 (653 - 886)	32 (28 - 35)	5.9 (5.9 - 6.1)	21 (20.8 - 21.9)	334 (277 - 346)	27 (26 - 31)
ARCUVA-FRAVIR-(FESROE)	13	571 (519 - 741)	25 (11 - 37)	2.4 (1.7 - 3.5)	24.7 (24.6 - 25.4)	252 (198 - 299)	34 (29 - 46)
CALNUT-ELYGLA	6	13 (6 - 25)	38 (31 - 43)	8.5 (8.1 - 8.8)	18.2 (16.4 - 19.4)	363 (331 - 402)	51 (45 - 56)
DANINT-POTFLA-(FESVIR)	6	1693 (1510 - 1718)	2 (1 - 3)	0.5 (0.3 - 1.1)	17.3 (17.2 - 17.9)	302 (280 - 316)	38 (36 - 53)
DANINT-RACCAN	2	510 (467 - 553)	22 (20 - 25)	2.5 (2.5 - 2.5)	26 (26 - 26)	281 (281 - 282)	38 (38 - 38)
FESROE-CERARV-KOEMAC	21	758 (581 - 798)	29 (24 - 30)	5.9 (5.8 - 6.1)	21.2 (21 - 22.1)	326 (269 - 345)	26 (23 - 27)
FESVIR-(PHLDIF-ARECAP)	29	2037 (1805 - 2139)	22 (4 - 35)	-2.4 (-3.4 - -1.2)	17 (16.7 - 17.7)	252 (215 - 294)	47 (38 - 54)
FESVIR-EUC(ENG,LED)	37	1807 (1486 - 1968)	31 (12 - 36)	-0.7 (-2.4 - 0.6)	17.1 (15.8 - 19.2)	302 (224 - 452)	45 (37 - 57)
FESVIR-LUPLAT	21	1927 (1687 - 2031)	9 (2 - 28)	-0.6 (-1.4 - 0.8)	16.2 (15.6 - 17.6)	307 (290 - 469)	46 (39 - 61)
JUNCOM-PHLDIF	6	1822 (1357 - 1985)	21 (13 - 40)	-0.1 (-1 - 3.2)	15.7 (14.2 - 18.6)	323 (270 - 530)	28 (23 - 70)
KOEMAC-(AGRPAL-RACCAN)	3	792 (608 - 928)	24 (13 - 34)	2.6 (2.1 - 2.7)	23.3 (22.6 - 24.6)	265 (251 - 266)	33 (31 - 37)
PAXMYR/PHLDIF	25	1880 (1652 - 2018)	34 (22 - 42)	-2.2 (-3.2 - -0.3)	17.7 (16.8 - 18.8)	246 (214 - 336)	45 (31 - 64)
POPTRE-PAXMYR	7	1000 (665 - 1352)	25 (7 - 34)	0.2 (-0.7 - 1.3)	22.6 (19.8 - 24.4)	261 (198 - 281)	35 (26 - 40)
PSESPI-(CALRUB)/(RACCAN)	6	598 (534 - 708)	28 (20 - 44)	1.4 (0.8 - 1.7)	24.8 (23.7 - 25.3)	223 (191 - 274)	40 (28 - 52)

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
RACCAN-(PENDAV)	8	861 (662 - 1169)	24 (6 - 42)	1.5 (0.9 - 2.6)	23.1 (21.1 - 24.9)	252 (205 - 328)	42 (32 - 59)
RUBPAR/CHAANG-HERMAX	23	979 (640 - 1559)	20 (7 - 38)	1 (-0.7 - 4.4)	21.3 (17.5 - 25.1)	300 (196 - 511)	37 (26 - 67)
SORSIT/VACDEL-(PHYEMP)	23	1565 (1385 - 1699)	29 (18 - 37)	-0.1 (-1.5 - 2.3)	17.9 (16.6 - 18.8)	383 (292 - 463)	57 (42 - 80)
SPISPL/CARSPE-(POLBIS)	11	1506 (1175 - 1708)	36 (7 - 38)	1.1 (-0.5 - 2.4)	16.7 (15.2 - 19)	451 (297 - 800)	45 (36 - 97)
SYMALB-HOLDIS	7	1138 (1051 - 1191)	20 (16 - 33)	3.4 (2.9 - 3.9)	18 (17.5 - 19.3)	261 (216 - 417)	32 (24 - 51)
VAC(DEL,SCO)/FESVIR	14	1968 (1751 - 2024)	31 (19 - 40)	-2.0 (-2.7 - 0.8)	17.3 (16.6 - 18.4)	258 (216 - 368)	45 (35 - 57)
VACMEM-(SORSIT)/(CALRUB)	45	1579 (1307 - 1958)	32 (17 - 40)	0.8 (-2.6 - 0.3)	17.3 (15.9 - 21.4)	361 (205 - 716)	45 (29 - 72)
VACMEM/XERTEN	16	1570 (1405 - 1754)	22 (6 - 36)	1.2 (0.5 - 2.2)	17.8 (17 - 19.7)	307 (243 - 423)	44 (32 - 65)
VALSIT-CARSPE	54	1607 (1245 - 1854)	25 (6 - 37)	0.2 (-2 - 1.5)	17.1 (15.1 - 19.1)	336 (276 - 711)	46 (27 - 74)
VALSIT-LIGGRA	17	1687 (1535 - 1894)	9 (6 - 28)	0 (-2.3 - 1)	17.3 (16.8 - 19)	290 (228 - 440)	45 (37 - 54)
VALSIT-VERVIR	38	1588 (1260 - 1795)	21 (4 - 37)	0.7 (-2 - 2.7)	17.2 (16.2 - 18.7)	379 (261 - 557)	47 (27 - 70)

## 2.B.2.Nd Western North American Interior Chaparral

**Table A-6.** Environmental table for associations in 2.B.2.Nd Western North American Interior Chaparral. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
CEAVEL-(SPIBET)/CALRUB	25	1099 (401 - 1552)	27 (9 - 36)	0.2 (-1.1 - 2.1)	22 (19.2 - 29.2)	200 (166 - 265)	28 (16 - 62)
CEAVEL-AMEALN/MAIRAC	13	1065 (613 - 1247)	21 (14 - 35)	0.2 (-0.6 - 1.1)	22.4 (20.6 - 26.7)	206 (196 - 317)	28 (24 - 32)
SALSCO-ACEGLA-(CEAVEL)	24	1021 (695 - 1264)	21 (11 - 31)	0.4 (-0.4 - 1)	22.5 (19.8 - 25.8)	276 (202 - 361)	28 (25 - 40)

## 2.C.2.Na North American Bog & Fen

**Table A-7.** Environmental table for associations in 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
CAR(AQUUD,NIG,UTR)-CALLEP	40	1262 (870 - 1755)	6 (1 - 12)	2.2 (-0.7 - 4.3)	18.3 (16 - 20.4)	487 (296 - 705)	67 (35 - 91)
LEDGRO-KALMIC/SPHAGN	22	179 (100 - 352)	0 (0 - 0)	7.1 (6.3 - 7.9)	23 (21.3 - 24.2)	255 (74 - 414)	39 (21 - 57)
PINCON/LEDGRO/SPHAGN	23	99 (6 - 184)	0 (0 - 0)	7.6 (6.5 - 8.6)	22.2 (19.2 - 24.2)	313 (67 - 462)	39 (20 - 53)

## 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh

**Table A-8.** Environmental table for associations in 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
ACECIR/(PTEAQU)	33	807 (548 - 1083)	20 (8 - 34)	2 (0.3 - 5.3)	22.4 (18.4 - 26.2)	335 (211 - 595)	46 (21 - 82)
ACECIR/ATHFIL-TOLMEN	30	823 (432 - 1156)	21 (3 - 35)	2.6 (0.4 - 4.6)	22.3 (19.4 - 27.4)	305 (200 - 411)	47 (18 - 67)
ALNVIR Mesic	37	1345 (872 - 1798)	20 (3 - 38)	0.3 (-2.7 - 3.9)	19.4 (17 - 22.8)	275 (144 - 417)	38 (22 - 58)
ALNVIR-ACECIR	3	876 (645 - 1199)	28 (8 - 44)	3.6 (0.9 - 5.1)	21.9 (21.3 - 22.9)	319 (197 - 391)	34 (19 - 43)
ALNVIR-RUBSPE-(OPLHOR)	96	1139 (757 - 1445)	19 (2 - 36)	1.2 (-1.3 - 3.8)	20.5 (16.9 - 25.1)	329 (169 - 526)	43 (17 - 84)
CARNIG	58	1791 (1413 - 2243)	8 (1 - 21)	-0.9 (-4.1 - 2.1)	17.1 (15.7 - 18.9)	390 (143 - 748)	59 (23 - 96)
CARSPE-POTFLA	18	1527 (999 - 1770)	2 (0 - 7)	0.8 (-1.5 - 3.4)	17.5 (16 - 19.1)	368 (279 - 553)	50 (29 - 69)
CORSER Pacific	11	594 (3 - 871)	9 (0 - 24)	2.8 (0.5 - 8.5)	23.6 (22.2 - 24.9)	248 (158 - 361)	39 (18 - 61)
HERMAX	16	1400 (1145 - 1645)	19 (3 - 35)	1.6 (-0.6 - 4)	17.2 (15.8 - 19.7)	321 (251 - 523)	29 (22 - 40)
KALMIC/CARNIG	16	1699 (1172 - 1978)	4 (1 - 8)	-0.9 (-4.6 - 3)	17.8 (16.8 - 19.4)	321 (197 - 530)	61 (40 - 90)
OPLHOR Pacific	6	1031 (743 - 1322)	19 (5 - 31)	2.1 (0.6 - 3.1)	19.6 (18.6 - 21.5)	410 (287 - 500)	44 (42 - 49)
RIBBRA-RUBSPE	11	835 (460 - 1343)	15 (1 - 41)	3.2 (1.4 - 4.5)	21.4 (17.2 - 25.6)	396 (269 - 498)	36 (19 - 58)
SAL(MEL,SIT)	12	869 (532 - 1467)	7 (0 - 29)	-0.2 (-1.5 - 1)	25.3 (19.9 - 28.5)	160 (80 - 223)	22 (11 - 32)

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
SALCOM	22	1557 (1300 - 1736)	8 (1 - 24)	0.5 (-1.9 - 2)	16.5 (15 - 19.2)	386 (227 - 700)	38 (25 - 45)
SALCOM/SENTRI	20	1579 (1137 - 1811)	9 (1 - 21)	-0.4 (-2.4 - 1.7)	17.8 (15 - 20)	293 (146 - 551)	45 (25 - 73)
SALIX-SPIDOU/CAR(AQU, OBN, UTR)	31	221 (0 - 533)	2 (0 - 8)	6 (1.6 - 9)	22.4 (17.6 - 25.2)	290 (122 - 411)	38 (23 - 53)
SALSIT	9	809 (202 - 1219)	1 (0 - 3)	3.1 (0.9 - 7.4)	21.7 (20.7 - 24.1)	372 (263 - 574)	37 (23 - 53)
SALSIT-(ALNINC)/ANGARG	22	1152 (738 - 1523)	5 (0 - 12)	-0.5 (-1.9 - 1)	22.1 (18.3 - 27.2)	242 (85 - 348)	32 (12 - 44)
SALSIT/EQUARV-PETFRI	16	828 (423 - 1320)	5 (0 - 15)	2.5 (0.5 - 5.3)	21.8 (18.6 - 25.4)	359 (244 - 496)	48 (32 - 76)
SAUAME-HERMAX	1	1564 (1564 - 1564)	2 (2 - 2)	0.4 (0.4 - 0.4)	16.3 (16.3 - 16.3)	301 (301 - 301)	24 (24 - 24)

#### 4.B.1.Nb Western North American Alpine Tundra

**Table A-9.** Environmental table for associations in 4.B.1.Nb Western North American Alpine Tundra. Mean values are followed by 5<sup>th</sup> and 95<sup>th</sup> percentiles in parentheses.

Abbrev	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
ARCUVA	5	2048 (1871 - 2142)	16 (10 - 27)	-1.1 (-1.7 - 0.5)	15.7 (15.2 - 16.8)	373 (293 - 435)	58 (47 - 74)
ARTLUD-LOMMAR	14	1812 (1590 - 1982)	21 (15 - 29)	0.4 (-0.7 - 1.47)	15.3 (14.5 - 16.8)	320 (289 - 351)	43 (34 - 50)
ATHAME-CRYACR	16	1466 (1093 - 1755)	23 (13 - 33)	-0.1 (-2.2 - 1.7)	18.3 (16.1 - 20)	330 (246 - 556)	49 (36 - 82)
CARSPE-POLBIS	68	1682 (1269 - 1906)	17 (3 - 35)	0.5 (-0.7 - 2.5)	16.6 (15.4 - 18.1)	409 (282 - 693)	47 (25 - 80)
CASMER-PHYEMP	51	1772 (1530 - 2037)	19 (3 - 34)	-0.3 (-2.8 - 1.6)	16.4 (15.5 - 17.8)	410 (293 - 827)	68 (43 - 98)
CHALAT-OXYDIG-(VALSIT)	12	1353 (1288 - 1601)	33 (16 - 44)	-0.6 (-1 - -0.4)	18.9 (17.8 - 19.8)	306 (277 - 325)	44 (38 - 49)
DASFRU-(PHLDIF)	7	1976 (1882 - 2128)	22 (16 - 29)	-0.9 (-1.6 - -0.3)	15.1 (14.7 - 15.5)	296 (286 - 305)	24 (23 - 40)
ELMRAC	7	1624 (1452 - 1902)	33 (22 - 40)	0.4 (-0.3 - 1.6)	15.6 (15 - 16.5)	552 (298 - 744)	40 (25 - 57)
EMPNIG-LUPSEL	10	2057 (1816 - 2184)	14 (4 - 33)	-1.4 (-2.3 - 0)	15.4 (15 - 16.6)	416 (311 - 503)	51 (48 - 85)
ERIPYR-POLDAV	8	2052 (1917 - 2235)	18 (7 - 31)	-1.7 (-2.1 - -0.2)	15.3 (14.7 - 16.5)	346 (309 - 438)	49 (45 - 61)
EUCPAU-(PHAHAS-CASMIN)	21	1662 (1396 - 1855)	36 (24 - 44)	0.5 (-0.7 - 2.2)	15.8 (15.1 - 16.9)	328 (291 - 529)	32 (24 - 73)
FESROE-PHLDIF-ARECAP	13	1657 (1412 - 1959)	20 (8 - 32)	1 (-0.8 - 2.6)	17 (15.2 - 18.4)	293 (233 - 334)	26 (23 - 29)
JUNPAR-(POLBIS)	8	1819 (1644 - 1893)	18 (6 - 27)	-0.1 (-0.7 - 1.7)	15.6 (14.1 - 16.9)	298 (273 - 460)	25 (23 - 51)

<b>Abbrev</b>	<b>Plot Total</b>	<b>Elevation (m)</b>	<b>Slope (°)</b>	<b>Temp Max Jan (°C)</b>	<b>Temp Max Jul (°C)</b>	<b>PPT Jan (mm)</b>	<b>PPT Jul (mm)</b>
LEWCOL-(JUNPAR)	4	1727 (1107 - 1869)	30 (28 - 38)	-1.2 (-2.1 - 0.9)	18.6 (18.2 - 22.8)	240 (228 - 279)	38 (27 - 39)
LUEPEC-SAXTOL	30	1844 (1530 - 2151)	18 (4 - 34)	-0.8 (-2.5 - 1.2)	16.2 (15.1 - 18)	413 (289 - 532)	53 (40 - 88)
LUIHYP-(LOMMAR-CASPAR)	3	1408 (1389 - 1664)	38 (36 - 41)	3.8 (1.2 - 3.8)	17.9 (17.8 - 17.9)	318 (299 - 319)	33 (33 - 37)
PHLDIF-(LOMMAR)	12	1631 (1398 - 1900)	36 (15 - 47)	1 (-0.5 - 3)	16.3 (15.4 - 18.7)	402 (279 - 655)	47 (26 - 67)
PHLDIF-LUPSEL-(PEDCON)	7	2046 (1945 - 2217)	13 (4 - 23)	-1.3 (-1.8 - -0.8)	15.6 (15 - 16)	313 (294 - 342)	47 (46 - 49)
PHYEMP/LUPLAT	49	1734 (1529 - 1931)	19 (6 - 39)	0.3 (-0.9 - 1.3)	16.8 (15.9 - 17.7)	448 (289 - 609)	49 (33 - 82)
PHYEMP-VACDEL	68	1709 (1419 - 1901)	17 (4 - 32)	0.3 (-1.7 - 2.2)	16.9 (15.7 - 17.9)	428 (302 - 688)	67 (31 - 95)
PHYGLA/OREALP	5	2168 (2067 - 2260)	26 (20 - 43)	-3.2 (-4.4 - -1.8)	16 (14.7 - 17.1)	400 (263 - 459)	65 (47 - 77)
SAXBRO	6	1811 (1669 - 2071)	33 (24 - 39)	0.3 (-0.8 - 1.1)	15.5 (14.7 - 17)	345 (255 - 401)	53 (34 - 57)
SAXTOL-LUZPIP	42	1834 (1426 - 2050)	18 (6 - 30)	-0.4 (-2.6 - 2.1)	16.1 (15.2 - 18.2)	420 (308 - 481)	72 (35 - 82)

## B. Environmental tables for wetland alliances of Mount Rainier, North Cascades, and Olympic National Parks

### 1.B.3.Nc Rocky Mountain-Great Basin Montane Flooded & Swamp Forest

**Table B-1.** Environmental table for wetland alliances in 1.B.3.Nc Rocky Mountain-Great Basin Montane Flooded & Swamp Forest. Mean values are followed by 5th and 95th percentiles in parentheses.

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A0311 <i>Populus balsamifera</i> ssp. <i>trichocarpa</i> Northern Rocky Mountain Riparian Forest	84	816 (504 - 1156)	5 (0 - 17)	0.3 (-1.4 - 2.3)	25.7 (22.3 - 28.4)	130 (49 - 290)	28 (10 - 52)
A3760 <i>Populus tremuloides</i> Riparian Forest	35	910 (610 - 1238)	4 (0 - 17)	0.1 (-1.7 - 2.1)	25.7 (22.9 - 27.9)	88 (38 - 176)	29 (10 - 57)
A3776 <i>Thuja plicata</i> - <i>Tsuga heterophylla</i> Rocky Mountain Swamp Forest	59	903 (655 - 1236)	5 (1 - 14)	0.1 (-1.9 - 1.8)	25.1 (22.9 - 27.7)	149 (64 - 280)	35 (12 - 58)
A4429 <i>Alnus rhombifolia</i> - <i>Alnus rubra</i> Interior Swamp & Riparian Forest	16	849 (650 - 1118)	9 (2 - 30)	0.8 (-1.2 - 2.8)	26.8 (25 - 28.5)	107 (44 - 164)	24 (17 - 34)
A4432 <i>Thuja plicata</i> - <i>Tsuga heterophylla</i> Rocky Mountain Riparian Forest	48	786 (589 - 1061)	6 (1 - 22)	0.5 (-1.2 - 1.9)	25.3 (22.2 - 28.5)	160 (58 - 271)	27 (11 - 49)

### 1.B.3.Ng Vancouverian Flooded & Swamp Forest

**Table B-2.** Environmental table for wetland alliances in 1.B.3.Ng Vancouverian Flooded & Swamp Forest. Mean values are followed by 5th and 95th percentiles in parentheses.

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A3746 <i>Picea sitchensis</i> - <i>Tsuga heterophylla</i> - <i>Alnus rubra</i> Riparian Forest	17	282 (15 - 826)	8 (0 - 23)	6.2 (2.5 - 8.7)	20.6 (15.8 - 24.8)	390 (273 - 532)	47 (22 - 62)
A3753 <i>Alnus rubra</i> - <i>Fraxinus latifolia</i> / <i>Lysichiton americanus</i> Swamp Woodland	61	414 (12 - 1017)	5 (0 - 26)	5.5 (1.8 - 8.3)	23 (19.7 - 25.5)	356 (240 - 466)	41 (23 - 60)

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A3766 <i>Tsuga (mertensiana, heterophylla)</i> - <i>Abies amabilis</i> Riparian & Swamp Forest	109	918 (434 - 1340)	11 (1 - 30)	1.9 (-0.2 - 5.1)	21.6 (18 - 25.8)	329 (188 - 539)	44 (20 - 73)
A4285 <i>Tsuga heterophylla</i> - <i>Picea sitchensis</i> / <i>Lysichiton americanus</i> Swamp Forest	129	198 (3 - 926)	10 (0 - 42)	7.2 (3.2 - 9)	20.9 (17.3 - 24.1)	355 (173 - 479)	48 (26 - 61)
A4428 <i>Populus balsamifera</i> ssp. <i>trichocarpa</i> - <i>Alnus rubra</i> - <i>Fraxinus latifolia</i> Riparian Forest	251	334 (28 - 740)	6 (0 - 27)	5.5 (0.7 - 8.3)	23 (20.1 - 25.6)	396 (217 - 575)	48 (19 - 69)
A4430 <i>Alnus rubra</i> - <i>Acer macrophyllum</i> - <i>Alnus viridis</i> Lower Montane Riparian & Swamp Forest	24	771 (611 - 1146)	11 (1 - 40)	1.6 (0.4 - 3.3)	24.7 (22.2 - 29.5)	245 (68 - 418)	25 (12 - 42)
ANEW001 <i>Alnus rubra</i> / <i>Dactylis glomerata</i> Ruderal Flooded Forest [Provisional]	5	139 (43 - 273)	2 (1 - 2)	7.3 (6.1 - 8.1)	22.3 (21.6 - 23.1)	499 (412 - 647)	62 (54 - 78)

## 2.C.2.Na North American Bog & Fen

**Table B-3.** Environmental table for wetland alliances in 2.C.2.Na North American Bog & Fen. Mean values are followed by 5th and 95th percentiles in parentheses.

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A3435 <i>Carex limosa</i> - <i>Carex buxbaumii</i> - <i>Triglochin maritima</i> Alkaline Graminoid Fen	115	1341 (849 - 1927)	2 (0 - 7)	-1 (-3.1 - 1.4)	22 (17.6 - 26.1)	160 (45 - 392)	43 (19 - 72)
A3437 <i>Carex lasiocarpa</i> - <i>Carex livida</i> - <i>Dulichium arundinaceum</i> Acidic Graminoid Fen	0	-	-	-	-	-	-
A4405 <i>Carex aquatilis</i> var. <i>dives</i> - <i>Carex cusickii</i> Intermediate Fen	140	928 (12 - 1664)	2 (0 - 10)	3.4 (-0.1 - 8.5)	20.3 (16.3 - 23.6)	404 (256 - 554)	49 (22 - 91)
A4407 <i>Pinus contorta</i> - <i>Tsuga heterophylla</i> / <i>Ledum groenlandicum</i> / <i>Sphagnum capillifolium</i> Bog Woodland	42	159 (26 - 351)	0 (0 - 0)	7.3 (5.3 - 8.6)	22.7 (20.5 - 24.2)	284 (74 - 462)	40 (21 - 59)
A4408 <i>Pinus contorta</i> - <i>Tsuga heterophylla</i> / <i>Ledum groenlandicum</i> / <i>Carex livida</i> Coastal Bog Woodland	77	88 (2 - 288)	1 (0 - 3)	8.1 (6.7 - 9)	19.6 (17 - 22.8)	376 (320 - 479)	54 (36 - 60)
A4409 <i>Ledum groenlandicum</i> - <i>Kalmia microphylla</i> - <i>Rhynchospora alba</i> Shrub & Open Bog	151	148 (24 - 356)	1 (1 - 3)	7.4 (5.2 - 8.4)	21.8 (17.4 - 24.2)	314 (104 - 449)	48 (22 - 60)
A4411 <i>Myrica gale</i> - <i>Carex utriculata</i> - <i>Sphagnum</i> spp. Acidic Shrub & Open Fen	199	128 (3 - 472)	1 (0 - 2)	7.6 (4.3 - 8.9)	21.3 (17.6 - 24.2)	342 (115 - 465)	45 (22 - 61)



Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A4412 <i>Kalmia microphylla</i> - <i>Caltha leptosepala</i> - <i>Sphagnum</i> spp. Montane Acidic Shrub & Open Fen	39	933 (143 - 1385)	1 (0 - 4)	3.4 (1.5 - 5.9)	20.9 (19 - 23.9)	419 (283 - 545)	59 (24 - 91)

## 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh

**Table B-4.** Environmental table for wetland alliances in 2.C.4.Nb Western North American Freshwater Shrubland, Wet Meadow & Marsh. Mean values are followed by 5th and 95th percentiles in parentheses.

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A1003 <i>Salix commutata</i> Wet Shrubland	50	1565 (1206 - 1828)	8 (1 - 22)	-0.1 (-2.6 - 2.1)	17.3 (15 - 19.6)	333 (154 - 683)	42 (25 - 71)
A1698 <i>Caltha leptosepala</i> - <i>Rhodiola rhodantha</i> Wet Meadow	18	1275 (852 - 2118)	7 (1 - 20)	1.6 (-3.1 - 4.3)	18.9 (16.4 - 20.8)	411 (156 - 556)	68 (36 - 92)
A3831 <i>Kalmia microphylla</i> - <i>Cassiope mertensiana</i> - <i>Dryas drummondii</i> Wet Dwarf-shrubland	16	1699 (1172 - 1978)	4 (1 - 8)	-0.9 (-4.6 - 3)	17.8 (16.8 - 19.4)	321 (197 - 530)	61 (40 - 90)
A3832 <i>Carex nigricans</i> - <i>Sibbaldia procumbens</i> - <i>Trollius laxus</i> Wet Meadow	76	1729 (1286 - 2238)	6 (1 - 20)	-0.5 (-4.1 - 2.4)	17.2 (15.7 - 18.9)	385 (144 - 722)	57 (25 - 96)
A3891 <i>Eleocharis palustris</i> - <i>Eleocharis macrostachya</i> Marsh	2	767 (691 - 843)	1 (1 - 1)	-0.4 (-1.4 - 0.7)	27.4 (26.9 - 27.9)	49 (33 - 65)	39 (34 - 44)
A3895 <i>Schoenoplectus americanus</i> - <i>Schoenoplectus acutus</i> - <i>Schoenoplectus californicus</i> Marsh	3	527 (345 - 747)	0 (0 - 0)	0.7 (-0.6 - 2)	28.8 (25.9 - 31.2)	49 (27 - 80)	26 (11 - 45)
A4413 <i>Petasites frigidus</i> - <i>Stachys chamissonis</i> var. <i>cooleyae</i> Streamside Marsh	11	627 (399 - 916)	3 (0 - 8)	3.7 (2.3 - 4.7)	24 (21.6 - 25.7)	408 (297 - 501)	27 (19 - 42)
A4414 <i>Carex obnupta</i> - <i>Carex exsiccata</i> - <i>Typha latifolia</i> Basin Marsh & Wet Meadow	62	252 (4 - 849)	1 (0 - 4)	6.8 (4 - 8.6)	22.2 (18.8 - 24.8)	289 (112 - 457)	37 (20 - 57)
A4416 <i>Alnus viridis</i> ssp. <i>sinuata</i> Riparian Shrubland	126	1233 (755 - 1659)	12 (1 - 33)	-0.3 (-2.4 - 2.8)	21.3 (17.7 - 26.7)	239 (73 - 394)	36 (15 - 67)
A4417 <i>Mimulus Lewisii</i> - <i>Philonotis fontana</i> Seep & Streambank	8	1592 (1313 - 1825)	7 (2 - 13)	-0.6 (-2.6 - 2.1)	18 (15.6 - 20.6)	359 (203 - 513)	47 (36 - 70)
A4418 <i>Alnus viridis</i> - <i>Acer circinatum</i> - <i>Salix sitchensis</i> Montane Wet Shrubland	229	948 (480 - 1414)	16 (0 - 35)	2 (-0.6 - 5.1)	21.5 (17.7 - 25.7)	334 (181 - 508)	43 (17 - 79)
A4419 <i>Spiraea douglasii</i> - <i>Malus fusca</i> - <i>Salix sitchensis</i> Lowland Wet Shrubland	97	211 (3 - 844)	2 (0 - 11)	6.7 (1.7 - 9)	22.3 (17.9 - 25.2)	277 (115 - 427)	38 (22 - 57)
A4420 <i>Salix drummondiana</i> - <i>Alnus incana</i> Shrub Carr & Swamp	120	1097 (725 - 1698)	1 (0 - 5)	-0.3 (-2.1 - 1.6)	24.1 (20.5 - 27.2)	139 (49 - 348)	35 (11 - 57)

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A4421 <i>Alnus incana</i> - <i>Cornus sericea</i> Riparian Shrubland	194	919 (530 - 1334)	5 (0 - 19)	-0.1 (-1.8 - 1.9)	25.5 (21.9 - 28.4)	106 (46 - 270)	31 (11 - 53)
A4424 <i>Senecio triangularis</i> - <i>Saxifraga</i> spp. - <i>Mimulus</i> spp. Streamside Wet Meadow	21	1201 (682 - 1707)	11 (1 - 50)	0.8 (-2.5 - 4.4)	21.1 (18.7 - 24.7)	299 (75 - 507)	35 (17 - 54)
A4425 <i>Carex utriculata</i> - <i>Calamagrostis canadensis</i> Basin Marsh & Wet Meadow	156	1036 (536 - 1655)	1 (0 - 5)	0.6 (-1.8 - 4.1)	23.5 (18.1 - 28.4)	194 (39 - 511)	40 (11 - 90)
A4427 <i>Heracleum maximum</i> - <i>Carex scopulorum</i> var. <i>bracteosa</i> - <i>Veratrum viride</i> Wet Meadow	34	1663 (1186 - 2213)	11 (0 - 33)	-0.4 (-3.9 - 3.2)	17.5 (16 - 20.4)	261 (120 - 387)	42 (21 - 96)

### 5.B.2.Na North American Freshwater Aquatic Vegetation

**Table B-5.** Environmental table for wetland alliances in 5.B.2.Na North American Freshwater Aquatic Vegetation. Mean values are followed by 5th and 95th percentiles in parentheses.

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A1747 <i>Lemna minor</i> - <i>Wolffia borealis</i> - <i>Wolffia columbiana</i> Aquatic Vegetation	0	–	–	–	–	–	–
A2628 <i>Fontinalis antipyretica</i> Aquatic Vegetation	0	–	–	–	–	–	–
A3893 <i>Hippuris vulgaris</i> - <i>Ruppia</i> spp. - <i>Sparganium</i> spp. Aquatic Vegetation	11	888 (8 - 1905)	0 (0 - 0)	1.4 (-3.3 - 8.6)	23.6 (18.5 - 27.2)	151 (56 - 342)	48 (30 - 77)
A3920 <i>Ranunculus aquatilis</i> - <i>Callitriche palustris</i> - <i>Callitriche heterophylla</i> Aquatic Vegetation	1	1295 (1295 - 1295)	0 (0 - 0)	0.6 (0.6 - 0.6)	21.9 (21.9 - 21.9)	176 (176 - 176)	21 (21 - 21)
A3921 <i>Utricularia macrorhiza</i> - <i>Utricularia minor</i> - <i>Utricularia ochroleuca</i> Aquatic Vegetation	0	–	–	–	–	–	–
A3922 <i>Brasenia schreberi</i> Aquatic Vegetation	1	2 (2 - 2)	0 (0 - 0)	8.8 (8.8 - 8.8)	17.7 (17.7 - 17.7)	323 (323 - 323)	36 (36 - 36)
A3924 <i>Elodea canadensis</i> Aquatic Vegetation	2	802 (618 - 985)	0 (0 - 0)	0 (-0.4 - 0.4)	26.3 (25.3 - 27.2)	133 (109 - 156)	28 (13 - 42)
A3925 <i>Menyanthes trifoliata</i> Aquatic Vegetation	2	807 (764 - 849)	1 (0 - 1)	3.4 (3.4 - 3.4)	23.1 (22.9 - 23.3)	276 (268 - 284)	34 (31 - 38)
A3926 <i>Nuphar polysepala</i> Western Aquatic Vegetation	17	582 (5 - 1404)	0 (0 - 1)	3.5 (-1.3 - 8.7)	22.7 (18.8 - 26.1)	196 (55 - 363)	39 (22 - 53)
A3927 <i>Potamogeton natans</i> - <i>Polygonum amphibium</i> Aquatic Vegetation	3	1041 (768 - 1369)	0 (0 - 1)	-0.3 (-1.5 - 0.7)	25 (22.9 - 27.6)	87 (61 - 128)	43 (39 - 46)

Alliance	Plot Total	Elevation (m)	Slope (°)	Temp Max Jan (°C)	Temp Max Jul (°C)	PPT Jan (mm)	PPT Jul (mm)
A3929 Schoenoplectus subterminalis Aquatic Vegetation	3	76 (32 - 120)	0 (0 - 0)	7.8 (7.2 - 8.5)	22.2 (20.7 - 23.1)	205 (118 - 338)	28 (21 - 40)

## References

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