

**Table S3:** Species genetic data, compiled from various sources, listed by species and by reference. For each sampled population in each respective reference, we report the population name and verbal location, Latitude (Lat) in decimal degrees, Longitude (Long) in decimal degrees, Elevation (Elev) in metres, number of individuals sampled (N), average number of alleles per locus (A), percent polymorphic loci (P), observed heterozygosity ( $H_o$ ), and expected heterozygosity ( $H_e$ ). Standard errors for  $H_o$  and  $H_e$  are listed in parentheses. Where data were not reported in the literature but was calculated by the authors of this paper, the values are listed in italics. Data that were not reported and that were not able to be estimated are noted with a hyphen. Where data are presented in the literature as population averages, the values are noted with an asterisk.

| Population code / name                            | Location & information | Lat         | Long         | Elev | N  | A    | P    | $H_o$ | (SE)  | $H_e$ | (SE)  |
|---|------------------------|-------------|--------------|------|----|------|------|-------|-------|-------|-------|
| <b><i>Abies amabilis</i> (Pacific silver fir)</b> |                        |             |              |      |    |      |      |       |       |       |       |
| <b>(Davidson &amp; El Kassaby, 1997)</b>          |                        |             |              |      |    |      |      |       |       |       |       |
| A   | Taylor River, BC       | 48.30       | 125.37       | 300  | 8  | 1.64 | 66.7 | -     | -     | 0.097 | -     |
| B   | Sebalhall Creek, BC    | 49.95       | 126.42       | 300  | 8  | 1.55 | 83.3 | -     | -     | 0.068 | -     |
| C   | Maquilla Creek, BC     | 50.06       | 126.34       | 500  | 8  | 1.55 | 66.7 | -     | -     | 0.889 | -     |
| F   | Fleet River, BC        | 48.65       | 124.10       | 710  | 9  | 1.73 | 66.7 | -     | -     | 0.156 | -     |
| H   | Hathaway Creek, BC     | 50.58       | 127.73       | 212  | 13 | 1.73 | 83.3 | -     | -     | 0.124 | -     |
| N   | Holberg Inlet, BC      | 50.73       | 128.00       | 215  | 11 | 1.55 | 66.7 | -     | -     | 0.109 | -     |
| R   | Ronning Creek, BC      | 50.61       | 128.19       | 275  | 13 | 1.45 | 83.3 | -     | -     | 0.081 | -     |
| W   | Mystery Creek, BC      | 48.8        | 128.15       | 625  | 17 | 1.82 | 83.3 | -     | -     | 0.177 | -     |
| <b><i>Abies lasiocarpa</i> (subalpine fir)</b>    |                        |             |              |      |    |      |      |       |       |       |       |
| <b>(Ettl &amp; Peterson, 2001)</b>                |                        |             |              |      |    |      |      |       |       |       |       |
| Mt. Dana high                                     | Olympic Mtns., WA      | <i>47.8</i> | <i>123.5</i> | 1800 | 30 | 1.6  | 26.7 | 0.070 | 0.042 | 0.079 | 0.048 |
| Klahhane Ridge high                               | Olympic Mtns., WA      | <i>48.0</i> | <i>123.4</i> | 1800 | 50 | 1.8  | 46.7 | 0.139 | 0.057 | 0.137 | 0.055 |
| Klahhane Ridge middle                             | Olympic Mtns., WA      | <i>48.0</i> | <i>123.4</i> | 1575 | 50 | 2.1  | 60.0 | 0.138 | 0.056 | 0.145 | 0.059 |
| Klahhane Ridge low                                | Olympic Mtns., WA      | <i>48.0</i> | <i>123.4</i> | 1350 | 50 | 2.1  | 60.0 | 0.139 | 0.057 | 0.143 | 0.058 |
| Blue Mtn. high                                    | Olympic Mtns., WA      | <i>47.6</i> | <i>123.2</i> | 1800 | 50 | 2.0  | 53.3 | 0.108 | 0.054 | 0.115 | 0.054 |
| Blue Mtn. middle 1                                | Olympic Mtns., WA      | <i>47.6</i> | <i>123.2</i> | 1575 | 50 | 1.9  | 46.7 | 0.116 | 0.054 | 0.117 | 0.055 |
| Blue Mtn. middle 2                                | Olympic Mtns., WA      | <i>47.6</i> | <i>123.2</i> | 1575 | 50 | 1.9  | 46.7 | 0.103 | 0.043 | 0.124 | 0.053 |
| Blue Mtn. low 1                                   | Olympic Mtns., WA      | <i>47.6</i> | <i>123.2</i> | 1350 | 50 | 2.0  | 60.0 | 0.120 | 0.046 | 0.139 | 0.053 |
| Blue Mtn. low 2                                   | Olympic Mtns., WA      | <i>47.6</i> | <i>123.2</i> | 1350 | 50 | 1.9  | 53.3 | 0.130 | 0.059 | 0.143 | 0.059 |

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**Table S3 – continued from previous page**

| Population                                      | Location/Comments | Lat   | Long   | Elev | N  | A     | P     | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|---|-------------------|-------|--------|------|----|-------|-------|----------------|-------|----------------|-------|
| <b><i>Abies procera</i> (noble fir)</b>         |                   |       |        |      |    |       |       |                |       |                |       |
| <b>(Yeh &amp; Hu, 2005)</b>                     |                   |       |        |      |    |       |       |                |       |                |       |
| 1 - Odell Butte                                 | WA & OR           | 43.27 | 121.52 | 1950 | 34 | 1.303 | 41.67 | -              | -     | 0.297          | 0.055 |
| 2 - Juniper Ridge                               | WA & OR           | 43.35 | 122.20 | 1700 | 34 | 1.250 | 41.67 | -              | -     | 0.254          | 0.058 |
| 3 - Grass Mtn.                                  | WA & OR           | 44.26 | 123.40 | 1060 | 34 | 1.247 | 37.50 | -              | -     | 0.231          | 0.061 |
| 4 - Mary's Peak                                 | WA & OR           | 44.30 | 123.33 | 1065 | 33 | 1.157 | 33.33 | -              | -     | 0.171          | 0.051 |
| 5 - Laurel Mtn.                                 | WA & OR           | 44.56 | 123.35 | 975  | 39 | 1.258 | 41.67 | -              | -     | 0.243          | 0.055 |
| 6 - Fisher Point                                | WA & OR           | 44.33 | 122.02 | 1220 | 36 | 1.252 | 45.83 | -              | -     | 0.254          | 0.054 |
| 7 - Snow Peak                                   | WA & OR           | 44.39 | 122.35 | 1060 | 36 | 1.214 | 41.67 | -              | -     | 0.218          | 0.054 |
| 8 - Elk Lake                                    | WA & OR           | 44.49 | 122.06 | 1200 | 36 | 1.264 | 45.83 | -              | -     | 0.265          | 0.061 |
| 9 - One Hundred Road                            | WA & OR           | 45.06 | 122.18 | 1130 | 36 | 1.213 | 33.33 | -              | -     | 0.210          | 0.058 |
| 10 - Elk Mtn.                                   | WA & OR           | 45.20 | 121.39 | 1220 | 33 | 1.245 | 41.67 | -              | -     | 0.249          | 0.054 |
| 11 - Larch Mtn.                                 | WA & OR           | 45.32 | 122.06 | 975  | 38 | 1.235 | 45.83 | -              | -     | 0.234          | 0.055 |
| 12 - Mt. Defiance                               | WA & OR           | 45.38 | 121.44 | 1125 | 39 | 1.251 | 45.83 | -              | -     | 0.261          | 0.053 |
| 13 - Larch Mtn.                                 | WA & OR           | 45.43 | 122.17 | 975  | 35 | 1.231 | 45.83 | -              | -     | 0.244          | 0.051 |
| 14 - Red Mtn.                                   | WA & OR           | 45.56 | 121.50 | 1220 | 33 | 1.189 | 33.33 | -              | -     | 0.190          | 0.056 |
| 15 - Hungry Peak                                | WA & OR           | 46.07 | 121.54 | 1280 | 34 | 1.150 | 37.50 | -              | -     | 0.153          | 0.051 |
| 16 - French Butte                               | WA & OR           | 46.20 | 121.57 | 1300 | 35 | 1.216 | 37.50 | -              | -     | 0.221          | 0.053 |
| 17 - Mud Lake                                   | WA & OR           | 46.24 | 121.37 | 1425 | 37 | 1.226 | 41.67 | -              | -     | 0.231          | 0.052 |
| 18 - McKinley Lake                              | WA & OR           | 46.35 | 122.08 | 900  | 33 | 1.157 | 33.33 | -              | -     | 0.179          | 0.047 |
| 19 - Corral Pass                                | WA & OR           | 47.01 | 121.08 | 1615 | 38 | 1.258 | 45.83 | -              | -     | 0.270          | 0.049 |
| 20 - Stampede Pass                              | WA & OR           | 47.14 | 121.22 | 1065 | 33 | 1.208 | 37.50 | -              | -     | 0.210          | 0.055 |
| 21 - Stevens Pass                               | WA & OR           | 47.43 | 121.08 | 1000 | 33 | 1.258 | 37.50 | -              | -     | 0.253          | 0.058 |
| <b><i>Acer macrophyllum</i> (bigleaf maple)</b> |                   |       |        |      |    |       |       |                |       |                |       |
| <b>(Iddrisu &amp; Ritland, 2004)</b>            |                   |       |        |      |    |       |       |                |       |                |       |
| Jericho   | Jericho area, BC  | 49.2  | 123.1  | 0    | 40 | 2.2   | 80    | 0.108          | 0.029 | 0.102          | 0.026 |
| Fraser  | Fraser area, BC   | 49.0  | 121.0  | 50   | 36 | 2.0   | 60    | 0.112          | 0.036 | 0.105          | 0.033 |
| Artic   | Artic area, WA    | 46.5  | 123.4  | 60   | 14 | 1.5   | 50    | 0.160          | 0.060 | 0.189          | 0.066 |

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**Table S3 – continued from previous page**

| Population                            | Location/Comments  | Lat   | Long   | Elev | N  | A    | P    | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|---------------------------------------|--------------------|-------|--------|------|----|------|------|----------------|-------|----------------|-------|
| Cascadia                              | Cascadia area, OR  | 44.4  | 122.5  | 250  | 20 | 1.6  | 60   | 0.121          | 0.037 | 0.164          | 0.046 |
| Elbe                                  | Elbe area, WA      | 46.5  | 122.1  | 380  | 20 | 1.6  | 60   | 0.109          | 0.035 | 0.172          | 0.049 |
| Helmick                               | Helmick area, OR   | 44.8  | 123.2  | 60   | 20 | 1.6  | 60   | 0.118          | 0.038 | 0.176          | 0.049 |
| Oakville                              | Oakville area, WA  | 46.8  | 123.2  | 30   | 20 | 1.6  | 60   | 0.117          | 0.033 | 0.148          | 0.041 |
| Siletz                                | Siletz area, OR    | 44.7  | 123.9  | 40   | 20 | 1.6  | 60   | 0.102          | 0.031 | 0.163          | 0.047 |
| <b><i>Alnus rubra</i> (red alder)</b> |                    |       |        |      |    |      |      |                |       |                |       |
| <b>(Xie <i>et al.</i>, 2002)</b>      |                    |       |        |      |    |      |      |                |       |                |       |
| Mainland - GVWD                       | Seymour, BC        | 49.40 | 122.97 | 200  | 26 | 1.53 | 31.6 | 0.099          | 0.038 | 0.112          | 0.043 |
| Mainland - CHEA                       | Cheakmus River, BC | 50.07 | 123.10 | 540  | 39 | 1.53 | 36.8 | 0.111          | 0.041 | 0.119          | 0.044 |
| Mainland - KING                       | Kingcome Inlet, BC | 51.50 | 126.13 | 30   | 52 | 1.53 | 31.6 | 0.109          | 0.040 | 0.121          | 0.044 |
| Mainland - NACH                       | Nachelor Bay, BC   | 52.37 | 126.92 | 30   | 55 | 1.58 | 31.6 | 0.129          | 0.048 | 0.130          | 0.048 |
| Mainland - SALL                       | Salloomt River, BC | 52.43 | 126.92 | 150  | 56 | 1.53 | 31.6 | 0.116          | 0.044 | 0.113          | 0.042 |
| Mainland - SNOW                       | Snow Creek, BC     | 54.25 | 129.55 | 10   | 63 | 1.47 | 31.6 | 0.144          | 0.057 | 0.153          | 0.056 |
| Mainland - PRINT                      | Prince Rupert, BC  | 54.27 | 130.27 | 46   | 65 | 1.53 | 31.6 | 0.115          | 0.047 | 0.112          | 0.043 |
| Mainland - SHAM                       | Shames River, BC   | 54.43 | 128.92 | 100  | 68 | 1.47 | 31.6 | 0.119          | 0.048 | 0.120          | 0.046 |
| Islands - PORTR                       | Port Renfrew, BC   | 48.60 | 124.23 | 20   | 4  | 1.47 | 26.3 | 0.070          | 0.032 | 0.071          | 0.032 |
| Islands - COW                         | Cowichan M.F., BC  | 48.77 | 123.65 | 150  | 9  | 1.42 | 26.3 | 0.058          | 0.029 | 0.066          | 0.031 |
| Islands - UCLU                        | Ucluelet , BC      | 49.00 | 125.57 | 40   | 14 | 1.37 | 26.3 | 0.068          | 0.029 | 0.090          | 0.038 |
| Islands - LOWR                        | Lowry Lake, BC     | 49.40 | 125.15 | 120  | 28 | 1.63 | 36.8 | 0.093          | 0.038 | 0.103          | 0.041 |
| Islands - WOSS                        | Woss #2, BC        | 49.97 | 126.25 | 150  | 37 | 1.47 | 26.3 | 0.067          | 0.030 | 0.075          | 0.034 |
| Islands - BIGT                        | Bigtree #2, BC     | 50.23 | 125.72 | 300  | 45 | 1.53 | 26.3 | 0.121          | 0.054 | 0.123          | 0.052 |
| Islands - PORTH                       | Port Hardy, BC     | 50.62 | 127.25 | 37   | 49 | 1.53 | 31.6 | 0.077          | 0.033 | 0.092          | 0.038 |
| Islands - NE62                        | Ne 62, BC          | 50.72 | 127.98 | 170  | 51 | 1.53 | 31.6 | 0.104          | 0.046 | 0.102          | 0.044 |
| Islands - POOL                        | Poole Inlet, BC    | 52.35 | 131.35 | 1    | 53 | 1.58 | 31.6 | 0.070          | 0.029 | 0.090          | 0.035 |
| Islands - COPP                        | Copper Bay, BC     | 53.12 | 131.67 | 10   | 57 | 1.47 | 26.3 | 0.079          | 0.035 | 0.088          | 0.038 |
| Islands - MASS                        | Masset , BC        | 54.05 | 132.00 | 10   | 61 | 1.53 | 31.6 | 0.102          | 0.044 | 0.105          | 0.044 |

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**Table S3 – continued from previous page**

| Population  | Location/Comments   | Lat  | Long  | Elev  | N  | A   | P  | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)  |
|---|---------------------|------|-------|-------|----|-----|----|----------------|------|----------------|-------|
| <b><i>Calocedrus decurrens</i> (incense cedar)</b>  |                     |      |       |       |    |     |    |                |      |                |       |
| <b>(Harry, 1984)</b>                                |                     |      |       |       |    |     |    |                |      |                |       |
| Kilarc-LS   | Sierra Nevada, CA   | 40.7 | 121.9 | 890   | 43 | 2.8 | 52 | -              | -    | 0.207          | 0.043 |
| Kilarc-LN   | Sierra Nevada, CA   | 40.7 | 121.9 | 890   | 44 | 2.8 | 52 | -              | -    | 0.184          | 0.039 |
| Kilarc-HS   | Sierra Nevada, CA   | 40.7 | 121.9 | 1390  | 50 | 3.0 | 60 | -              | -    | 0.222          | 0.041 |
| Kilarc-HN   | Sierra Nevada, CA   | 40.7 | 121.9 | 1390  | 52 | 3.0 | 60 | -              | -    | 0.181          | 0.039 |
| Bailey-LS   | Sierra Nevada, CA   | 38.4 | 120.3 | 1510  | 46 | 2.7 | 44 | -              | -    | 0.177          | 0.042 |
| Bailey-LN   | Sierra Nevada, CA   | 38.4 | 120.3 | 1510  | 40 | 2.6 | 56 | -              | -    | 0.186          | 0.035 |
| Bailey-HS   | Sierra Nevada, CA   | 38.4 | 120.3 | 2010  | 49 | 2.4 | 56 | -              | -    | 0.176          | 0.039 |
| Bailey-HN   | Sierra Nevada, CA   | 38.4 | 120.3 | 2010  | 50 | 2.3 | 48 | -              | -    | 0.182          | 0.043 |
| Greenhorn-LS  | Sierra Nevada, CA   | 35.7 | 118.3 | 1790  | 49 | 2.1 | 48 | -              | -    | 0.172          | 0.041 |
| Greenhorn-LN  | Sierra Nevada, CA   | 35.7 | 118.3 | 1790  | 51 | 2.4 | 40 | -              | -    | 0.166          | 0.040 |
| Greenhorn-HS  | Sierra Nevada, CA   | 35.7 | 118.3 | 2290  | 45 | 1.9 | 40 | -              | -    | 0.149          | 0.038 |
| Greenhorn-HN  | Sierra Nevada, CA   | 35.7 | 118.3 | 2290  | 51 | 2.4 | 44 | -              | -    | 0.154          | 0.040 |
| <b><i>Cupressus nootkatensis</i> (yellow cedar)</b> |                     |      |       |       |    |     |    |                |      |                |       |
| <b>(Ritland <i>et al.</i>, 2001)</b>                |                     |      |       |       |    |     |    |                |      |                |       |
| Mt. Baker   | Mt. Baker, WA       | 48.8 | 121.8 | >1000 | 32 | 1.8 | 60 | -              | -    | 0.153          | 0.014 |
| Port Hardy  | Port Hardy, BC      | 50.7 | 127.5 | 0     | 32 | 1.7 | 60 | -              | -    | 0.132          | 0.011 |
| Mt. Washington                                      | Mt. Washington, BC  | 49.8 | 125.3 | 1000  | 35 | 1.5 | 40 | -              | -    | 0.090          | 0.013 |
| Tofino  | Tofino, BC          | 49.1 | 125.9 | 0     | 36 | 1.7 | 50 | -              | -    | 0.161          | 0.011 |
| Anchorage   | Anchorage, AK       | 61.2 | 149.9 | 0     | 27 | 1.4 | 30 | -              | -    | 0.062          | 0.006 |
| Juneau  | Juneau, AK          | 58.4 | 134.2 | 0     | 30 | 1.7 | 50 | -              | -    | 0.198          | 0.010 |
| Petersburg  | Petersburg, AK      | 56.8 | 132.9 | 0     | 33 | 1.8 | 60 | -              | -    | 0.197          | 0.010 |
| Ketchikan   | Ketchikan, AK       | 52.4 | 131.7 | 1000  | 30 | 1.8 | 60 | -              | -    | 0.192          | 0.011 |
| Prince Rupert                                       | Prince Rupert, BC   | 54.3 | 130.3 | 0     | 32 | 1.7 | 50 | -              | -    | 0.163          | 0.011 |
| Bella Coola   | Bella Coola, BC     | 52.4 | 126.8 | <1000 | 32 | 1.7 | 50 | -              | -    | 0.141          | 0.008 |
| Hurricane Ridge                                     | Hurricane Ridge, WA | 48.0 | 123.5 | >1000 | 31 | 1.8 | 60 | -              | -    | 0.149          | 0.009 |
| Mt. Rainier   | Mt. Rainier, WA     | 46.9 | 121.8 | <1000 | 32 | 1.6 | 40 | -              | -    | 0.117          | 0.015 |

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**Table S3 – continued from previous page**

| Population   | Location/Comments        | Lat   | Long   | Elev   | N     | A    | P    | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|--|--------------------------|-------|--------|--------|-------|------|------|----------------|-------|----------------|-------|
| Oakridge   | Oakridge, OR             | 43.7  | 122.5  | >1000  | 32    | 1.8  | 60   | -              | -     | 0.156          | 0.010 |
| Whiskey Peak                                       | Whiskey Peak, OR         | 42.0  | 123.3  | >1000  | 30    | 1.5  | 30   | -              | -     | 0.101          | 0.011 |
| Castlegar  | Castlegar, BC            | 49.3  | 117.7  | <1000  | 23    | 1.6  | 40   | -              | -     | 0.187          | 0.007 |
| Black Tusk   | Black Tusk, BC           | 50.0  | 123.0  | 1000   | 32    | 1.8  | 60   | -              | -     | 0.183          | 0.015 |
| Queen Charlotte                                    | Queen Charlotte, BC      | 53.8  | 132.0  | 400    | 31    | 1.7  | 50   | -              | -     | 0.123          | 0.011 |
| <b><i>Larix occidentalis</i> (western larch)</b>   |                          |       |        |        |       |      |      |                |       |                |       |
| <b>(Jaquish &amp; El-Kassaby, 1998)</b>            |                          |       |        |        |       |      |      |                |       |                |       |
| 1 - FLAT   | Flathead, BC             | 49.07 | 114.43 | 1380   | 34    | 1.95 | 40   | 0.151          | 0.038 | 0.151          | 0.037 |
| 2 - PLUM   | Plumbob, BC              | 49.25 | 115.40 | 1160   | 30    | 1.80 | 50   | 0.177          | 0.040 | 0.173          | 0.040 |
| 3 - CARR   | Carrol Creek Road, BC    | 49.10 | 116.20 | 975    | 35    | 1.90 | 65   | 0.174          | 0.035 | 0.185          | 0.037 |
| 4 - SALM   | Salmo, BC                | 49.23 | 117.27 | 800    | 35    | 1.85 | 40   | 0.151          | 0.041 | 0.143          | 0.038 |
| 5 - CHRI   | Christina Lake, BC       | 49.22 | 118.15 | 1200   | 35    | 1.80 | 70   | 0.206          | 0.045 | 0.219          | 0.040 |
| 6 - BLUE   | Blue Ridge Kaslo, BC     | 50.05 | 117.08 | 1375   | 36    | 1.85 | 65   | 0.204          | 0.038 | 0.220          | 0.042 |
| 7 - WILS   | Wilson Lake Road, BC     | 50.23 | 117.72 | 1300   | 36    | 1.80 | 70   | 0.236          | 0.045 | 0.237          | 0.043 |
| 8 - BECK   | Becker Lake, BC          | 50.25 | 119.17 | 1200   | 38    | 1.80 | 65   | 0.213          | 0.042 | 0.204          | 0.039 |
| 9 - MERR   | Merritt, BC              | 50.28 | 120.93 | 1300   | 34    | 1.70 | 55   | 0.151          | 0.036 | 0.156          | 0.037 |
| <b>(Fins &amp; Seeb, 1986)</b>                     |                          |       |        |        |       |      |      |                |       |                |       |
| Eastern Washington                                 | 7 stands, Eastern WA     | 48.6  | 118.4  | 1197.9 | 69    | 1.3  | 30*  | 0.079          | 0.035 | 0.089          | 0.039 |
| Northern Idaho                                     | 9 stands, Northern ID    | 47.3  | 116.3  | 1282.4 | 79    | 1.3  | 30*  | 0.049          | 0.020 | 0.074          | 0.032 |
| Western Montana                                    | 3 stands, Western MT     | 46.6  | 114.5  | 1473.3 | 29    | 1.2  | 30*  | 0.054          | 0.031 | 0.068          | 0.033 |
| Payette  | One stand, Payette, ID   | 45.1  | 116.4  | 1646.0 | 10    | 1.3  | 30*  | 0.078          | 0.048 | 0.089          | 0.051 |
| <b><i>Picea engelmannii</i> (Engelmann spruce)</b> |                          |       |        |        |       |      |      |                |       |                |       |
| <b>(Ledig et al., 2006)</b>                        |                          |       |        |        |       |      |      |                |       |                |       |
| Kootenay River                                     | Nelson Forest Region, BC | 50.97 | 116.27 | 1830   | 27.5* | 2.7  | 66.7 | -              | -     | 0.247          | 0.047 |
| Moyie  | Nelson Forest Region, BC | 49.53 | 116.10 | 1700   | 27.5* | 2.6  | 70.8 | -              | -     | 0.247          | 0.044 |
| Bluebird Creek                                     | Nelson Forest Region, BC | 49.13 | 116.88 | 1430   | 27.5* | 2.7  | 66.7 | -              | -     | 0.268          | 0.046 |
| Summit Lake  | Payette N.F., ID         | 45.05 | 115.92 | 2075   | 27.5* | 2.3  | 75.0 | -              | -     | 0.252          | 0.043 |

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**Table S3 – continued from previous page**

| Population                                | Location/Comments               | Lat   | Long   | Elev | N     | A    | P    | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|---|---------------------------------|-------|--------|------|-------|------|------|----------------|-------|----------------|-------|
| Beartooth Pass                            | Shoshone N.F., WY               | 44.93 | 109.52 | 2985 | 27.5* | 2.5  | 75.0 | -              | -     | 0.307          | 0.045 |
| Panther Creek                             | Salmon N.F., ID                 | 44.88 | 114.30 | 2135 | 27.5* | 2.5  | 75.0 | -              | -     | 0.253          | 0.045 |
| Six Bit Spring                            | Cache N.F., UT                  | 41.58 | 111.43 | 2560 | 27.5* | 2.1  | 54.2 | -              | -     | 0.227          | 0.045 |
| Highline Trailhead                        | Wasatch N.F., UT                | 40.73 | 110.87 | 3180 | 27.5* | 2.4  | 58.3 | -              | -     | 0.228          | 0.043 |
| Ferron Reservoir                          | Manti-Lasal N.F., UT            | 39.13 | 111.45 | 2930 | 27.5* | 2.2  | 62.5 | -              | -     | 0.215          | 0.040 |
| Barlow Lake                               | San Juan N.F., CO               | 37.75 | 107.98 | 2955 | 27.5* | 2.6  | 70.8 | -              | -     | 0.296          | 0.046 |
| Navajo Lake                               | Dixie N.F., UT                  | 37.53 | 112.77 | 2865 | 27.5* | 2.2  | 54.2 | -              | -     | 0.231          | 0.044 |
| East Gavilan Canyon                       | Carson N.F., NM                 | 36.73 | 106.30 | 2970 | 27.5* | 2.5  | 75.0 | -              | -     | 0.273          | 0.046 |
| San Francisco Mtns.                       | Coconino N.F., AZ               | 35.33 | 111.70 | 2775 | 27.5* | 2.4  | 66.7 | -              | -     | 0.269          | 0.046 |
| Sierra Blanca                             | Sierra Blanca, Lincoln N.F., NM | 33.40 | 105.78 | 2925 | 27.5* | 2.1  | 66.7 | -              | -     | 0.282          | 0.050 |
| Mt. Graham                                | Mt. Graham, Coronado N.F., AZ   | 32.67 | 109.87 | 3018 | 27.5* | 2.4  | 66.7 | -              | -     | 0.261          | 0.047 |
| Flys Peak                                 | Flys Peak, Coronado N.F., AZ    | 31.87 | 109.28 | 2866 | 27.5* | 2.0  | 62.5 | -              | -     | 0.227          | 0.043 |
| <b><i>Picea glauca</i> (white spruce)</b> |                                 |       |        |      |       |      |      |                |       |                |       |
| <b>(Godt <i>et al.</i>, 2001)</b>         |                                 |       |        |      |       |      |      |                |       |                |       |
| Site 1                                    | SK                              | -     | -      | -    | 47.5* | 1.83 | 44.4 | 0.181          | 0.042 | 0.158          | 0.053 |
| Site 2                                    | SK                              | -     | -      | -    | 47.5* | 1.78 | 55.6 | 0.167          | 0.046 | 0.158          | 0.049 |
| Site 3                                    | SK                              | -     | -      | -    | 47.5* | 1.72 | 44.4 | 0.153          | 0.042 | 0.166          | 0.052 |
| Site 4                                    | SK                              | -     | -      | -    | 47.5* | 1.72 | 44.4 | 0.154          | 0.042 | 0.159          | 0.052 |
| Site 5                                    | SK                              | -     | -      | -    | 47.5* | 1.67 | 44.4 | 0.164          | 0.045 | 0.167          | 0.050 |
| Site 6                                    | SK                              | -     | -      | -    | 47.5* | 1.61 | 44.4 | 0.162          | 0.041 | 0.157          | 0.052 |
| Site 7                                    | SK                              | -     | -      | -    | 47.5* | 1.72 | 50.0 | 0.156          | 0.044 | 0.160          | 0.049 |
| <b>(Furnier <i>et al.</i>, 1991)</b>      |                                 |       |        |      |       |      |      |                |       |                |       |
| A   | NF East                         | -     | -      | -    | 20    | 2.2  | 100  | 0.367          | -     | 0.329          | -     |
| B   | NF West                         | -     | -      | -    | 20    | 2.2  | 100  | 0.300          | -     | 0.291          | -     |
| C   | NB                              | -     | -      | -    | 20    | 2.5  | 100  | 0.242          | -     | 0.280          | -     |
| D   | MN                              | -     | -      | -    | 20    | 2.5  | 83.3 | 0.283          | -     | 0.256          | -     |
| E   | QC Central                      | -     | -      | -    | 19    | 2.0  | 100  | 0.263          | -     | 0.275          | -     |
| F   | MA                              | -     | -      | -    | 19    | 2.0  | 100  | 0.272          | -     | 0.250          | -     |

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**Table S3 – continued from previous page**

| Population | Location/Comments | Lat | Long | Elev | N  | A   | P    | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE) |
|------------|-------------------|-----|------|------|----|-----|------|----------------|------|----------------|------|
| G          | NY                | -   | -    | -    | 20 | 2.2 | 100  | 0.333          | -    | 0.301          | -    |
| H          | QC South          | -   | -    | -    | 20 | 2.0 | 100  | 0.275          | -    | 0.293          | -    |
| I          | ON Southeast      | -   | -    | -    | 20 | 2.2 | 100  | 0.325          | -    | 0.307          | -    |
| J          | ON East           | -   | -    | -    | 20 | 1.8 | 83.3 | 0.250          | -    | 0.230          | -    |
| K          | ON Northeast      | -   | -    | -    | 20 | 2.5 | 100  | 0.283          | -    | 0.295          | -    |
| L          | MI                | -   | -    | -    | 19 | 2.0 | 100  | 0.386          | -    | 0.340          | -    |
| M          | WI                | -   | -    | -    | 20 | 2.2 | 100  | 0.300          | -    | 0.309          | -    |
| N          | ON West           | -   | -    | -    | 19 | 2.3 | 100  | 0.404          | -    | 0.353          | -    |
| O          | MN                | -   | -    | -    | 20 | 2.3 | 100  | 0.283          | -    | 0.281          | -    |
| P          | MB South          | -   | -    | -    | 20 | 2.3 | 100  | 0.383          | -    | 0.357          | -    |
| Q          | MB North          | -   | -    | -    | 20 | 2.3 | 100  | 0.350          | -    | 0.323          | -    |
| R          | SD                | -   | -    | -    | 20 | 2.0 | 100  | 0.308          | -    | 0.294          | -    |
| S          | SK North          | -   | -    | -    | 20 | 1.8 | 83.3 | 0.233          | -    | 0.198          | -    |
| T          | MT                | -   | -    | -    | 5  | 1.8 | 66.7 | 0.367          | -    | 0.319          | -    |
| U          | BC                | -   | -    | -    | 20 | 2.2 | 100  | 0.233          | -    | 0.261          | -    |
| V          | AK                | -   | -    | -    | 20 | 2.0 | 83.3 | 0.283          | -    | 0.239          | -    |

*Picea mariana* (black spruce)

(Rajora & Pluhar, 2003)

|        |   |       |        |     |    |      |      |       |       |       |       |
|--------|---|-------|--------|-----|----|------|------|-------|-------|-------|-------|
| E1-FNM | Post-fire nat mature, Pine Falls, MB      | 50.68 | 95.90  | 274 | 35 | 2.59 | 65.6 | 0.215 | 0.037 | 0.296 | 0.045 |
| E1-FNR | Post-fire nat young regen, Pine Falls, MB | 50.68 | 95.89  | 274 | 35 | 2.31 | 62.5 | 0.176 | 0.033 | 0.265 | 0.045 |
| E1-HNR | Post-harvest nat regen, Pine Falls, MB    | 50.68 | 95.90  | 274 | 35 | 2.53 | 62.5 | 0.222 | 0.004 | 0.293 | 0.047 |
| E1-PLT | Plantation, Pine Falls, MB                | 50.67 | 95.91  | 290 | 35 | 2.53 | 65.6 | 0.198 | 0.037 | 0.279 | 0.045 |
| E2-FNM | Post-fire nat mature, Bissett, MB         | 50.78 | 95.28  | 320 | 35 | 2.59 | 75.0 | 0.223 | 0.035 | 0.317 | 0.042 |
| E2-FNR | Post-fire nat young regen, Bissett, MB    | 50.78 | 95.29  | 320 | 35 | 2.69 | 75.0 | 0.263 | 0.041 | 0.335 | 0.042 |
| E2-HNR | Post-harvest nat regen, Bissett, MB       | 50.78 | 95.28  | 320 | 35 | 2.50 | 59.4 | 0.267 | 0.047 | 0.322 | 0.050 |
| E2-PLT | Plantation, Bissett, MB                   | 50.83 | 95.32  | 305 | 35 | 2.66 | 71.9 | 0.240 | 0.039 | 0.328 | 0.045 |
| N1-FNM | Post-fire nat mature, The Pas, MB         | 54.29 | 101.39 | 294 | 35 | 2.34 | 59.4 | 0.201 | 0.044 | 0.272 | 0.046 |
| N1-FNR | Post-fire nat regen, The Pas, MB          | 54.27 | 101.38 | 294 | 35 | 2.34 | 62.5 | 0.193 | 0.042 | 0.280 | 0.046 |

(Continued on next page)

**Table S3 – continued from previous page**

| Population                                    | Location/Comments                        | Lat   | Long   | Elev | N  | A    | P    | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|---|--|-------|--------|------|----|------|------|----------------|-------|----------------|-------|
| N1-HNR  | Post-harvest nat regen, The Pas, MB      | 54.30 | 101.48 | 290  | 35 | 2.56 | 71.9 | 0.219          | 0.043 | 0.335          | 0.045 |
| N1-PLT  | Plantation, The Pas, MB                  | 54.29 | 101.44 | 290  | 35 | 2.16 | 59.4 | 0.203          | 0.041 | 0.291          | 0.045 |
| N2-FNM  | Post-fire nat mature, Snow Lake, MB      | 54.90 | 99.76  | 290  | 35 | 2.63 | 68.8 | 0.242          | 0.045 | 0.341          | 0.048 |
| N2-FNR  | Post-fire nat young regen, Snow Lake, MB | 54.72 | 99.98  | 274  | 35 | 2.47 | 68.8 | 0.169          | 0.030 | 0.279          | 0.043 |
| N2-HNR  | Post-harvest nat regen, Snow Lake, MB    | 54.90 | 99.76  | 290  | 35 | 2.66 | 71.9 | 0.239          | 0.044 | 0.328          | 0.047 |
| N2-PLT  | Plantation, Snow Lake, MB                | 54.90 | 99.76  | 290  | 35 | 2.69 | 68.8 | 0.279          | 0.048 | 0.362          | 0.047 |
| <b>(O'Reilly <i>et al.</i>, 1985)</b>         |  |       |        |      |    |      |      |                |       |                |       |
| Sioux Narrows - Upland                        | Sioux Narrows, ON                        | 49.42 | 94.13  | -    | 10 | -    | 53.3 | -              | -     | 0.20           | -     |
| Sioux Narrows - Lowland                       | Sioux Narrows, ON                        | 49.42 | 94.13  | -    | 10 | -    | 46.7 | -              | -     | 0.22           | -     |
| Sioux Lookout - Upland                        | Sioux Lookout, ON                        | 50.15 | 91.75  | -    | 10 | -    | 33.3 | -              | -     | 0.16           | -     |
| Sioux Lookout - Lowland                       | Sioux Lookout, ON                        | 50.15 | 91.75  | -    | 10 | -    | 53.3 | -              | -     | 0.21           | -     |
| Nipigon - Upland                              | Nipigon, ON                              | 48.83 | 88.58  | -    | 10 | -    | 64.3 | -              | -     | 0.26           | -     |
| Nipigon - Lowland                             | Nipigon, ON                              | 48.83 | 88.58  | -    | 10 | -    | 73.3 | -              | -     | 0.27           | -     |
| Macdiarmid - Upland                           | Macdiarmid, ON                           | 49.42 | 88.12  | -    | 10 | -    | 46.7 | -              | -     | 0.20           | -     |
| Macdiarmid - Lowland                          | Macdiarmid, ON                           | 49.42 | 88.12  | -    | 10 | -    | 46.7 | -              | -     | 0.22           | -     |
| Cochrane - Upland                             | Cochrane, ON                             | 49.08 | 80.92  | -    | 10 | -    | 40.0 | -              | -     | 0.23           | -     |
| Cochrane - Lowland                            | Cochrane, ON                             | 49.08 | 80.92  | -    | 10 | -    | 66.7 | -              | -     | 0.25           | -     |
| <b>(Isabel <i>et al.</i>, 1995)</b>           |  |       |        |      |    |      |      |                |       |                |       |
| 325   | QC                                       | 50.2  | 74.2   | -    | 15 | 2.3  | 76.9 | 0.267          | 0.056 | 0.287          | 0.063 |
| 336   | QC                                       | 48.0  | 78.9   | -    | 15 | 2.0  | 69.2 | 0.337          | 0.085 | 0.285          | 0.062 |
| 342   | QC                                       | 50.4  | 68.4   | -    | 15 | 2.5  | 61.5 | 0.305          | 0.077 | 0.301          | 0.070 |
| 345   | QC                                       | 47.2  | 74.3   | -    | 15 | 2.1  | 69.2 | 0.348          | 0.083 | 0.311          | 0.071 |
| 369   | QC                                       | 48.3  | 64.2   | -    | 15 | 2.2  | 69.2 | 0.435          | 0.099 | 0.324          | 0.065 |
| <b><i>Picea sitchensis</i> (sitka spruce)</b> |  |       |        |      |    |      |      |                |       |                |       |
| <b>(Yeh &amp; El-Kassaby, 1980)</b>           |  |       |        |      |    |      |      |                |       |                |       |
| IUFRO-3024                                    | Duck Cr., AK                             | 58.37 | 134.58 | 30   | 76 | 2.00 | 67   | -              | -     | 0.16           | 0.03  |
| IUFRO-3030                                    | Ward L., AK                              | 55.42 | 131.70 | 15   | 78 | 1.62 | 50   | -              | -     | 0.15           | 0.04  |

(Continued on next page)



**Table S3 – continued from previous page**

| Population                                      | Location/Comments                        | Lat   | Long   | Elev | N  | A    | P    | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|---|--|-------|--------|------|----|------|------|----------------|-------|----------------|-------|
| IUFRO-3040                                      | Usk Ferry, BC                            | 54.77 | 128.25 | 137  | 79 | 1.69 | 46   | -              | -     | 0.15           | 0.04  |
| IUFRO-3044                                      | Inverness, BC                            | 54.20 | 130.25 | 15   | 79 | 1.77 | 50   | -              | -     | 0.13           | 0.04  |
| IUFRO-3049                                      | Link Rd., BC                             | 53.50 | 132.17 | 90   | 78 | 1.85 | 50   | -              | -     | 0.16           | 0.04  |
| IUFRO-3058                                      | Salmon Bay, BC                           | 50.38 | 125.95 | 0    | 78 | 1.69 | 42   | -              | -     | 0.14           | 0.04  |
| IUFRO-3062                                      | Big Qualicum R., BC                      | 49.38 | 124.62 | 0    | 78 | 1.92 | 54   | -              | -     | 0.16           | 0.04  |
| IUFRO-3003                                      | Forks, WA                                | 48.07 | 124.30 | 137  | 79 | 1.92 | 46   | -              | -     | 0.17           | 0.04  |
| IUFRO-3008                                      | Hoquiam, WA                              | 47.08 | 124.05 | 7    | 79 | 1.85 | 50   | -              | -     | 0.13           | 0.04  |
| IUFRO-3012                                      | Necanicum, OR                            | 45.82 | 123.77 | 46   | 78 | 1.85 | 58   | -              | -     | 0.13           | 0.04  |
| <b><i>Pinus albicaulis</i> (whitebark pine)</b> |  |       |        |      |    |      |      |                |       |                |       |
| <b>(Bruederle <i>et al.</i>, 1998)</b>          |  |       |        |      |    |      |      |                |       |                |       |
| 1. Miller Creek                                 | Gallatin Park, MT                        | 45.4  | 110.2  | -    | 30 | 1.6  | 42.1 | 0.167          | 0.052 | 0.146          | 0.045 |
| 2. Henderson Mtn.                               | Gallatin Park, MT                        | 45.0  | 110.0  | -    | 31 | 1.7  | 36.8 | 0.139          | 0.043 | 0.164          | 0.049 |
| 3. Fisher Creek                                 | Gallatin Park, MT                        | 45.1  | 109.9  | -    | 34 | 1.5  | 42.1 | 0.139          | 0.043 | 0.151          | 0.047 |
| 4. Island Lake                                  | Shoshone Park, WY                        | 44.9  | 109.5  | -    | 49 | 1.7  | 36.8 | 0.153          | 0.047 | 0.151          | 0.046 |
| 5. Mt. Washburn                                 | Yellowstone N.P., WY                     | 44.8  | 110.4  | -    | 33 | 1.6  | 36.8 | 0.139          | 0.045 | 0.145          | 0.046 |
| 6. Union Pass                                   | Shoshone Forest, Fremont County, WY      | 43.5  | 109.9  | -    | 20 | 1.5  | 36.8 | 0.161          | 0.054 | 0.146          | 0.047 |
| 7. Togwotee Pass                                | Bridger-Teton Forest, Teton County, WY   | 43.8  | 110.1  | -    | 25 | 1.7  | 36.8 | 0.141          | 0.047 | 0.153          | 0.046 |
| 8. Sheep Pass                                   | Bridger-Teton Forest, Lincoln County, WY | 42.5  | 110.8  | -    | 30 | 1.6  | 36.8 | 0.152          | 0.045 | 0.155          | 0.047 |
| 9. Commissary Ridge                             | Bridger-Teton Forest, Lincoln County, WY | 42.2  | 110.6  | -    | 30 | 1.6  | 42.1 | 0.138          | 0.042 | 0.161          | 0.048 |
| <b>(Jorgensen &amp; Hamrick, 1997)</b>          |  |       |        |      |    |      |      |                |       |                |       |
| 1. Cascade - WASH                               | Washington Pass, WA                      | 48.53 | 120.67 | -    | 48 | 2.00 | 25   | 0.092          | 0.009 | 0.096          | 0.039 |
| 2. Cascade - RAIN                               | Mt. Rainier N.P., WA                     | 46.92 | 121.65 | -    | 48 | 2.22 | 35   | 0.092          | 0.009 | 0.109          | 0.035 |
| 3. Cascade - ADAM                               | Mt. Adams, WA                            | 46.25 | 121.53 | -    | 48 | 2.00 | 25   | 0.083          | 0.009 | 0.075          | 0.033 |
| 4. Cascade - HOOD                               | Mt. Hood, OR                             | 45.40 | 121.67 | -    | 48 | 2.25 | 15   | 0.084          | 0.009 | 0.089          | 0.039 |
| 5. Cascade - BACH                               | Bachelor Peak, OR                        | 43.98 | 121.68 | -    | 48 | 2.00 | 20   | 0.082          | 0.009 | 0.080          | 0.037 |
| 6. Cascade - CRAT                               | Crater Lake N.P., OR                     | 42.93 | 122.17 | -    | 48 | 2.00 | 20   | 0.060          | 0.008 | 0.070          | 0.031 |

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**Table S3 – continued from previous page**

| Population                             | Location/Comments        | Lat   | Long   | Elev | N  | A    | P  | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|--|--------------------------|-------|--------|------|----|------|----|----------------|-------|----------------|-------|
| 7. Cascade - SHAS                      | Mt. Shasta, CA           | 41.37 | 122.20 | -    | 48 | 2.25 | 15 | 0.083          | 0.009 | 0.091          | 0.039 |
| 8. Cascade - LASS                      | Lassen Volcanic N.P., CA | 40.48 | 121.48 | -    | 48 | 2.00 | 15 | 0.079          | 0.009 | 0.075          | 0.035 |
| 9. Sierra Nevada - ROSE                | Mt. Rose Summit, NV      | 39.32 | 119.90 | -    | 48 | 2.43 | 20 | 0.119          | 0.010 | 0.120          | 0.046 |
| 10. Sierra Nevada - SONO               | Sonora Pass, CA          | 38.33 | 119.65 | -    | 48 | 2.43 | 20 | 0.104          | 0.010 | 0.104          | 0.042 |
| 11. Sierra Nevada - TIOG               | Tioga Pass, CA           | 37.92 | 119.25 | -    | 48 | 2.29 | 20 | 0.087          | 0.009 | 0.090          | 0.039 |
| 12. Sierra Nevada - MOSQ               | Mosquito Lake, CA        | 37.43 | 118.73 | -    | 48 | 2.00 | 20 | 0.091          | 0.009 | 0.100          | 0.041 |
| 13. Rocky Mtns. - JASP                 | Mt. Edith Cavell, AB     | 52.68 | 118.08 | -    | 48 | 2.43 | 25 | 0.080          | 0.009 | 0.088          | 0.036 |
| 14. Rocky Mtns. - PARK                 | Parker Ridge, AB         | 52.18 | 117.12 | -    | 48 | 2.17 | 25 | 0.076          | 0.009 | 0.095          | 0.035 |
| 15. Rocky Mtns. - CABI                 | Libby, MT                | 48.55 | 115.73 | -    | 48 | 2.30 | 25 | 0.082          | 0.009 | 0.113          | 0.037 |
| 16. Rocky Mtns. - GLAC                 | Glacier N.P., MT         | 48.68 | 113.75 | -    | 48 | 2.25 | 30 | 0.094          | 0.009 | 0.117          | 0.040 |
| 17. Rocky Mtns. - JEWL                 | Jewel Basin, MT          | 48.17 | 113.93 | -    | 48 | 2.00 | 20 | 0.090          | 0.009 | 0.088          | 0.035 |
| 18. Rocky Mtns. - FRNT                 | Choteau, MT              | 47.93 | 112.82 | -    | 48 | 2.36 | 25 | 0.108          | 0.010 | 0.111          | 0.039 |
| 19. Rocky Mtns. - NINE                 | Ninemile Divide, MT      | 47.13 | 114.32 | -    | 48 | 2.00 | 25 | 0.083          | 0.009 | 0.099          | 0.033 |
| 20. Rocky Mtns. - WILL                 | Corvallis, MT            | 46.32 | 113.92 | -    | 48 | 2.08 | 20 | 0.083          | 0.009 | 0.103          | 0.037 |
| 21. Rocky Mtns. - TOBA                 | Tobacco Roots, MT        | 45.52 | 112.00 | -    | 48 | 2.09 | 20 | 0.106          | 0.010 | 0.105          | 0.038 |
| 22. Rocky Mtns. - GRAV                 | Gravelly Range, MT       | 44.82 | 111.87 | -    | 48 | 2.25 | 30 | 0.096          | 0.010 | 0.111          | 0.036 |
| 23. Rocky Mtns. - BELT                 | Little Belts, MT         | 46.78 | 110.65 | -    | 48 | 2.09 | 30 | 0.098          | 0.010 | 0.105          | 0.034 |
| 24. Rocky Mtns. - YELL                 | Dunraven Pass, WY        | 44.78 | 110.50 | -    | 48 | 2.29 | 25 | 0.075          | 0.009 | 0.081          | 0.034 |
| 25. Rocky Mtns. - BEAR                 | Beartooth Plateau, WY    | 44.95 | 109.53 | -    | 48 | 2.33 | 25 | 0.086          | 0.009 | 0.106          | 0.038 |
| 26. Rocky Mtns. - TOGW                 | Togwotee Pass, WY        | 43.75 | 110.07 | -    | 48 | 2.14 | 25 | 0.079          | 0.009 | 0.089          | 0.037 |
| 27. Rocky Mtns. - CIDA                 | Yellow Pine, ID          | 45.07 | 115.42 | -    | 48 | 2.50 | 20 | 0.098          | 0.010 | 0.097          | 0.040 |
| 28. Rocky Mtns. - SAWT                 | Galena Summit, ID        | 43.87 | 114.70 | -    | 48 | 2.50 | 25 | 0.107          | 0.010 | 0.110          | 0.040 |
| 29. Great Basin - JARB                 | Jarbridge, NV            | 41.83 | 115.47 | -    | 48 | 2.14 | 25 | 0.077          | 0.009 | 0.090          | 0.035 |
| 30. Great Basin - RUBY                 | Ruby Range, NV           | 40.60 | 115.38 | -    | 48 | 2.00 | 20 | 0.056          | 0.008 | 0.064          | 0.032 |
| <i>Pinus contorta</i> (lodgepole pine) |                          |       |        |      |    |      |    |                |       |                |       |
| (Yeh & Layton, 1979)                   |                          |       |        |      |    |      |    |                |       |                |       |
| Marginal - 32                          | Southern YK              | 62.14 | 136.18 | 671  | 15 | 1.80 | 53 | 0.160          | 0.044 | 0.157          | 0.042 |
| Marginal - 33                          | Southern YK              | 63.18 | 136.28 | 877  | 15 | 1.72 | 44 | 0.165          | 0.049 | 0.144          | 0.044 |

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**Table S3 – continued from previous page**

| Population                          | Location/Comments | Lat   | Long   | Elev | N  | A    | P  | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|-------------------------------------|-------------------|-------|--------|------|----|------|----|----------------|-------|----------------|-------|
| Marginal - 34                       | Southern YK       | 60.41 | 136.11 | 747  | 15 | 1.80 | 52 | 0.125          | 0.032 | 0.138          | 0.038 |
| Marginal - 35                       | Northern BC       | 59.48 | 133.47 | 788  | 15 | 1.80 | 56 | 0.147          | 0.042 | 0.143          | 0.040 |
| Intermediate - 30                   | Northern BC       | 59.59 | 128.33 | 640  | 15 | 1.76 | 52 | 0.149          | 0.044 | 0.150          | 0.043 |
| Intermediate - 31                   | Southern YK       | 61.10 | 129.30 | 884  | 15 | 1.96 | 64 | 0.173          | 0.039 | 0.178          | 0.043 |
| Central - 36                        | Northern BC       | 57.29 | 130.13 | 815  | 15 | 2.12 | 76 | 0.176          | 0.036 | 0.184          | 0.043 |
| Central - 28                        | Northern BC       | 58.40 | 124.10 | 762  | 15 | 1.92 | 64 | 0.184          | 0.043 | 0.178          | 0.043 |
| Central - 71                        | Interior BC       | 50.43 | 119.27 | 1524 | 15 | 2.08 | 68 | 0.189          | 0.045 | 0.169          | 0.037 |
| <b>(Wheeler &amp; Guries, 1982)</b> |                   |       |        |      |    |      |    |                |       |                |       |
| BC - 1                              | Ssp. latifolia    | -     | -      | -    | -  | 1.86 | 70 | -              | -     | 0.114          | 0.026 |
| BC - 4                              | Ssp. latifolia    | -     | -      | -    | -  | 1.69 | 61 | -              | -     | 0.125          | 0.029 |
| WA - 5                              | Ssp. latifolia    | -     | -      | -    | -  | 1.81 | 70 | -              | -     | 0.103          | 0.025 |
| AB - 6                              | Ssp. latifolia    | -     | -      | -    | -  | 1.93 | 73 | -              | -     | 0.128          | 0.028 |
| AB - 7                              | Ssp. latifolia    | -     | -      | -    | -  | 2.24 | 82 | -              | -     | 0.144          | 0.028 |
| AB - 8                              | Ssp. latifolia    | -     | -      | -    | -  | 1.88 | 73 | -              | -     | 0.102          | 0.025 |
| AB - 9                              | Ssp. latifolia    | -     | -      | -    | -  | 1.95 | 70 | -              | -     | 0.120          | 0.027 |
| BC - 10                             | Ssp. latifolia    | -     | -      | -    | -  | 2.04 | 70 | -              | -     | 0.115          | 0.026 |
| YK - 14                             | Ssp. latifolia    | -     | -      | -    | -  | 1.71 | 64 | -              | -     | 0.108          | 0.025 |
| BC - 15                             | Ssp. latifolia    | -     | -      | -    | -  | 1.83 | 70 | -              | -     | 0.114          | 0.028 |
| YK - 16                             | Ssp. latifolia    | -     | -      | -    | -  | 1.76 | 70 | -              | -     | 0.129          | 0.029 |
| YK - 18                             | Ssp. latifolia    | -     | -      | -    | -  | 1.76 | 64 | -              | -     | 0.109          | 0.028 |
| YK - 21                             | Ssp. latifolia    | -     | -      | -    | -  | 1.83 | 79 | -              | -     | 0.113          | 0.028 |
| BC - 22                             | Ssp. latifolia    | -     | -      | -    | -  | 1.83 | 67 | -              | -     | 0.113          | 0.027 |
| CO - 23                             | Ssp. latifolia    | -     | -      | -    | -  | 1.81 | 64 | -              | -     | 0.119          | 0.028 |
| BC - 27                             | Ssp. latifolia    | -     | -      | -    | -  | 1.97 | 76 | -              | -     | 0.111          | 0.025 |
| BC - 29                             | Ssp. latifolia    | -     | -      | -    | -  | 1.86 | 73 | -              | -     | 0.119          | 0.028 |
| WA - 30                             | Ssp. latifolia    | -     | -      | -    | -  | 1.76 | 61 | -              | -     | 0.114          | 0.027 |
| AB - 32                             | Ssp. latifolia    | -     | -      | -    | -  | 1.81 | 64 | -              | -     | 0.105          | 0.025 |
| MT - 34                             | Ssp. latifolia    | -     | -      | -    | -  | 2.09 | 73 | -              | -     | 0.116          | 0.026 |

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**Table S3 – continued from previous page**

| Population                               | Location/Comments | Lat   | Long   | Elev | N  | A    | P    | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)  |
|--|-------------------|-------|--------|------|----|------|------|----------------|------|----------------|-------|
| YK - 36                                  | Ssp. latifolia    | -     | -      | -    | -  | 1.76 | 61   | -              | -    | 0.130          | 0.031 |
| BC - 37                                  | Ssp. latifolia    | -     | -      | -    | -  | 1.83 | 70   | -              | -    | 0.128          | 0.029 |
| MT - 46                                  | Ssp. latifolia    | -     | -      | -    | -  | 1.67 | 58   | -              | -    | 0.097          | 0.026 |
| YK - 50                                  | Ssp. latifolia    | -     | -      | -    | -  | 1.88 | 67   | -              | -    | 0.144          | 0.030 |
| BC - 45                                  | Ssp. contorta     | -     | -      | -    | -  | 1.88 | 61   | -              | -    | 0.130          | 0.030 |
| BC - 47                                  | Ssp. contorta     | -     | -      | -    | -  | 1.88 | 70   | -              | -    | 0.123          | 0.027 |
| BC - 48                                  | Ssp. contorta     | -     | -      | -    | -  | 1.18 | 64   | -              | -    | 0.125          | 0.029 |
| BC - 49                                  | Ssp. contorta     | -     | -      | -    | -  | 1.57 | 55   | -              | -    | 0.114          | 0.029 |
| WA - 38                                  | Ssp. contorta     | -     | -      | -    | -  | 1.93 | 73   | -              | -    | 0.139          | 0.029 |
| CA - 17                                  | Ssp. murrayana    | -     | -      | -    | -  | 1.86 | 70   | -              | -    | 0.120          | 0.026 |
| OR - 39                                  | Ssp. murrayana    | -     | -      | -    | -  | 2.02 | 76   | -              | -    | 0.128          | 0.028 |
| CA - 40                                  | Ssp. Bolanderi    | -     | -      | -    | -  | 1.62 | 58   | -              | -    | 0.109          | 0.280 |
| <b>(Dancik &amp; Yeh, 1983)</b>          |                   |       |        |      |    |      |      |                |      |                |       |
| Hinton                                   | Hinton, AB        | 53.43 | 117.48 | 1170 | 62 | 3.0  | 52.4 | 0.186          | -    | 0.184          | 0.045 |
| Cypress Hills                            | Cypress Hills, AB | 49.65 | 110.28 | 1410 | 30 | 2.5  | 52.4 | 0.165          | -    | 0.179          | 0.049 |
| Coleman                                  | Coleman, AB       | 49.75 | 114.50 | 1090 | 30 | 2.3  | 52.4 | 0.202          | -    | 0.239          | 0.063 |
| Canmore                                  | Canmore, AB       | 51.10 | 115.28 | 1630 | 30 | 2.4  | 47.6 | 0.187          | -    | 0.241          | 0.061 |
| Lake Abraham                             | Lake Abraham, AB  | 52.25 | 116.45 | 1750 | 30 | 2.3  | 52.4 | 0.179          | -    | 0.201          | 0.054 |
| <b><i>Pinus edulis</i> (pinyon pine)</b> |                   |       |        |      |    |      |      |                |      |                |       |
| <b>(Premoli <i>et al.</i>, 1994)</b>     |                   |       |        |      |    |      |      |                |      |                |       |
| OC-North                                 | Northeastern CO   | -     | -      | 1835 | 25 | 2.1  | 80   | 0.214          | -    | 0.262          | -     |
| OC-Centre                                | Northeastern CO   | -     | -      | 1835 | 25 | 2.0  | 50   | 0.192          | -    | 0.187          | -     |
| OC-East                                  | Northeastern CO   | -     | -      | 1835 | 25 | 1.9  | 60   | 0.220          | -    | 0.231          | -     |
| OC-West                                  | Northeastern CO   | -     | -      | 1835 | 25 | 2.0  | 50   | 0.203          | -    | 0.204          | -     |
| OC-South                                 | Northeastern CO   | -     | -      | 1835 | 25 | 1.9  | 60   | 0.205          | -    | 0.213          | -     |
| Lone Site                                | Northeastern CO   | -     | -      | 2050 | 44 | 2.3  | 50   | 0.164          | -    | 0.219          | -     |
| Bonner Peak                              | Northeastern CO   | -     | -      | 2270 | 43 | 2.1  | 40   | 0.181          | -    | 0.188          | -     |
| Windy Site                               | Northeastern CO   | -     | -      | 2100 | 16 | 1.5  | 40   | 0.150          | -    | 0.179          | -     |

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**Table S3 – continued from previous page**

| Population   | Location/Comments | Lat   | Long   | Elev | N | A   | P  | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)  |
|--|-------------------|-------|--------|------|---|-----|----|----------------|------|----------------|-------|
| Hewlett Gulch                                      | Northeastern CO   | -     | -      | 1820 | 9 | 1.6 | 60 | 0.193          | -    | 0.233          | -     |
| <b><i>Pinus monticola</i> (western white pine)</b> |                   |       |        |      |   |     |    |                |      |                |       |
| <b>(Steinhoff <i>et al.</i>, 1983)</b>             |                   |       |        |      |   |     |    |                |      |                |       |
| Interior - 5                                       | Beaver, BC        | 51.55 | 117.48 | 1145 | - | 1.4 | 42 | -              | -    | 0.15           | 0.057 |
| Interior - 58                                      | Hungry Horse, MT  | 48.32 | 113.98 | 1130 | - | 1.7 | 67 | -              | -    | 0.13           | 0.036 |
| Interior - 55                                      | Flower Creek, MT  | 48.38 | 115.57 | 670  | - | 1.8 | 75 | -              | -    | 0.16           | 0.050 |
| Interior - 45                                      | Beaver Creek, ID  | 48.73 | 116.87 | 915  | - | 1.8 | 67 | -              | -    | 0.16           | 0.049 |
| Interior - 49                                      | Crystal Creek, ID | 47.13 | 116.37 | 915  | - | 1.8 | 83 | -              | -    | 0.19           | 0.048 |
| Interior - 52                                      | Elk River, ID     | 46.82 | 116.17 | 915  | - | 1.7 | 67 | -              | -    | 0.13           | 0.032 |
| Interior - 35                                      | Fry Meadow, OR    | 45.78 | 117.82 | 1525 | - | 1.4 | 42 | -              | -    | 0.11           | 0.050 |
| Coastal - 3  | Coronation, BC    | 49.00 | 124.00 | 870  | - | 1.8 | 75 | -              | -    | 0.18           | 0.054 |
| Coastal - 4  | Victoria, BC      | 48.42 | 123.62 | 350  | - | 1.6 | 58 | -              | -    | 0.15           | 0.060 |
| Coastal - 8  | Forks, WA         | 47.93 | 124.37 | 150  | - | 1.2 | 17 | -              | -    | 0.06           | 0.038 |
| Coastal - 10                                       | Humptulips, WA    | 47.30 | 123.95 | 150  | - | 1.1 | 8  | -              | -    | 0.04           | 0.041 |
| Coastal - 12                                       | Everett, WA       | 48.08 | 122.13 | 30   | - | 1.5 | 50 | -              | -    | 0.10           | 0.049 |
| Coastal - 13                                       | Belfair, WA       | 47.48 | 122.90 | 90   | - | 2.0 | 92 | -              | -    | 0.15           | 0.039 |
| North-Central - 16                                 | White Pass, WA    | 46.57 | 121.37 | 1310 | - | 1.6 | 58 | -              | -    | 0.13           | 0.045 |
| North-Central - 23                                 | Mt. Hood, OR      | 45.27 | 121.77 | 975  | - | 1.6 | 58 | -              | -    | 0.13           | 0.050 |
| North-Central - 25                                 | Sweet Home, OR    | 44.42 | 122.17 | 1250 | - | 1.7 | 58 | -              | -    | 0.18           | 0.058 |
| South-Central - 29                                 | La Pine, OR       | 43.80 | 121.68 | 1830 | - | 1.8 | 67 | -              | -    | 0.25           | 0.060 |
| South-Central - 27                                 | Oakridge, OR      | 43.60 | 122.12 | 1370 | - | 1.8 | 67 | -              | -    | 0.16           | 0.049 |
| South-Central - 26                                 | Black Butte, OR   | 43.53 | 122.92 | 1065 | - | 1.8 | 75 | -              | -    | 0.20           | 0.053 |
| South-Central - 29                                 | Glide, OR         | 43.07 | 122.95 | 1160 | - | 1.8 | 75 | -              | -    | 0.23           | 0.052 |
| South-Central - 30                                 | Prospect, OR      | 42.87 | 122.37 | 1525 | - | 1.9 | 75 | -              | -    | 0.21           | 0.052 |
| South-Central - 33                                 | Pinehurst, OR     | 42.20 | 122.30 | 1645 | - | 1.8 | 67 | -              | -    | 0.21           | 0.061 |
| Siskiyou - 31                                      | Chicago Creek, CA | 41.97 | 123.67 | 1295 | - | 1.8 | 58 | -              | -    | 0.23           | 0.069 |
| Siskiyou - 32                                      | Elliot Creek, CA  | 42.00 | 123.00 | 1735 | - | 2.0 | 92 | -              | -    | 0.24           | 0.054 |
| Warner - 34  | Lakeview, OR      | 42.10 | 120.28 | 2286 | - | 2.0 | 83 | -              | -    | 0.32           | 0.058 |

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**Table S3 – continued from previous page**

| Population                                     | Location/Comments      | Lat   | Long   | Elev | N   | A     | P    | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)  |
|--|------------------------|-------|--------|------|-----|-------|------|----------------|------|----------------|-------|
| Warner - 38                                    | Willow Mtn., CA        | 41.83 | 122.23 | 1980 | -   | 2.3   | 92   | -              | -    | 0.29           | 0.058 |
| Warner - 41                                    | Lake Audrian, CA       | 38.65 | 120.07 | 2225 | -   | 2.2   | 83   | -              | -    | 0.26           | 0.069 |
| Warner - 42                                    | Blue Lakes, CA         | 38.62 | 119.92 | 2530 | -   | 2.0   | 75   | -              | -    | 0.26           | 0.064 |
| <b>(Kim <i>et al.</i>, 2011)</b>               |                        |       |        |      |     |       |      |                |      |                |       |
| ReSt   | Revelstoke, BC         | 51.00 | 118.19 | 500  | 27  | 1.606 | 87.9 | -              | -    | 0.194          | -     |
| TeXa   | Texada Island, BC      | 48.26 | 113.88 | 1100 | 25  | 1.621 | 90.9 | -              | -    | 0.198          | -     |
| SwCr   | Swamp Creek, WA        | 47.59 | 116.03 | 1345 | 29  | 1.667 | 87.9 | -              | -    | 0.208          | -     |
| ElCr   | Elya Creek, MT         | 49.70 | 124.37 | 215  | 27  | 1.636 | 84.8 | -              | -    | 0.190          | -     |
| MoSa   | Moon Saddle, ID        | 48.57 | 120.78 | 1190 | 22  | 1.576 | 87.9 | -              | -    | 0.187          | -     |
| HoLy   | Holly, WA              | 47.57 | 122.92 | 150  | 17  | 1.636 | 89.4 | -              | -    | 0.215          | -     |
| SmCr   | Smokey Creek, WA       | 46.02 | 121.68 | 1114 | 21  | 1.621 | 90.9 | -              | -    | 0.204          | -     |
| VeLa   | Veda Lake, OR          | 45.26 | 121.76 | 1310 | 26  | 1.727 | 90.9 | -              | -    | 0.233          | -     |
| InCrb  | Indian Creek, OR       | 44.36 | 118.79 | 1585 | 25  | 1.758 | 92.4 | -              | -    | 0.274          | -     |
| DeCr   | Deer Creek, OR         | 43.25 | 121.86 | 1740 | 28  | 1.894 | 97.0 | -              | -    | 0.316          | -     |
| NaCr   | National Creek, OR     | 43.00 | 122.38 | 1150 | 23  | 1.697 | 95.5 | -              | -    | 0.225          | -     |
| FlSp   | Fly Catcher Spring, OR | 42.35 | 124.30 | 800  | 27  | 1.773 | 89.4 | -              | -    | 0.275          | -     |
| GaQu   | Gasquet, CA            | 41.86 | 123.91 | 435  | 21  | 1.789 | 93.9 | -              | -    | 0.264          | -     |
| LoSt   | Lodge Pole Station, CA | 41.83 | 122.21 | 1880 | 22  | 1.773 | 92.4 | -              | -    | 0.289          | -     |
| SpCa   | Spur Canyon, CA        | 38.70 | 120.10 | 2500 | 17  | 1.721 | 81.8 | -              | -    | 0.254          | -     |
| <b><i>Pinus ponderosa</i> (ponderosa pine)</b> |                        |       |        |      |     |       |      |                |      |                |       |
| <b>(O'Malley <i>et al.</i>, 1979)</b>          |                        |       |        |      |     |       |      |                |      |                |       |
| OMALLEY-1979                                   | 10 pop., WA, ID, MT    | -     | -      | -    | 47  | 2.25  | -    | -              | -    | 0.123          | -     |
| <b>(Woods <i>et al.</i>, 1983)</b>             |                        |       |        |      |     |       |      |                |      |                |       |
| WOODS-1983                                     | 1 pop., Eastern MT     | -     | -      | -    | 150 | 2.6   | -    | -              | -    | 0.126          | 0.037 |
| <b>(Hamrick <i>et al.</i>, 1979)</b>           |                        |       |        |      |     |       |      |                |      |                |       |
| HAMRICK-1979                                   | 7 pop., Eastern CO     | -     | -      | -    | -   | 2.0   | 68.4 | -              | -    | 0.226          | -     |

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**Table S3 – continued from previous page**

| Population  | Location/Comments             | Lat | Long | Elev | N   | A    | P    | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)  |
|---|-------------------------------|-----|------|------|-----|------|------|----------------|------|----------------|-------|
| <b>(Niebling &amp; Conkle, 1990)</b>                |                               |     |      |      |     |      |      |                |      |                |       |
| Pacific - Warner Mtns.                              | 1 pop., Northern CA           | -   | -    | -    | 65  | 2.39 | 70   | -              | -    | 0.150          | 0.036 |
| Pacific - Mt. Rose                                  | 1 pop., Northern CA           | -   | -    | -    | 55  | 2.29 | 70   | -              | -    | 0.137          | 0.035 |
| North Plateau                                       | 12 pop., Pacific Northwest US | -   | -    | -    | 204 | 2.77 | 64   | -              | -    | 0.178          | 0.041 |
| Rocky Mtns.   | 20 pop., US Rocky Mtns.       | -   | -    | -    | 186 | 2.77 | 75   | -              | -    | 0.164          | 0.039 |
| <b><i>Populus tremuloides</i> (trembling aspen)</b> |                               |     |      |      |     |      |      |                |      |                |       |
| <b>(Cheliak &amp; Dancik, 1982)</b>                 |                               |     |      |      |     |      |      |                |      |                |       |
| 1   | AB                            | -   | -    | -    | 32  | 2.0  | 85   | 0.49           | -    | 0.41           | -     |
| 2   | AB                            | -   | -    | -    | 30  | 2.3  | 88   | 0.46           | -    | 0.40           | -     |
| 3   | AB                            | -   | -    | -    | 30  | 2.3  | 88   | 0.49           | -    | 0.44           | -     |
| 4   | AB                            | -   | -    | -    | 30  | 2.3  | 84   | 0.53           | -    | 0.41           | -     |
| 5   | AB                            | -   | -    | -    | 30  | 2.5  | 92   | 0.60           | -    | 0.43           | -     |
| 6   | AB                            | -   | -    | -    | 30  | 2.3  | 85   | 0.52           | -    | 0.42           | -     |
| 7   | AB                            | -   | -    | -    | 40  | 2.4  | 88   | 0.56           | -    | 0.42           | -     |
| <b>(Jelinski &amp; Cheliak, 1992)</b>               |                               |     |      |      |     |      |      |                |      |                |       |
| Prairie I   | Waterton Lakes N.P., AB       | -   | -    | 1300 | 37  | 2.5  | 87.5 | 0.30           | -    | 0.315          | 0.042 |
| Prairie II  | Waterton Lakes N.P., AB       | -   | -    | 1300 | 25  | 2.4  | 75.0 | 0.35           | -    | 0.258          | 0.047 |
| Akamina   | Waterton Lakes N.P., AB       | -   | -    | 2700 | 25  | 2.2  | 81.3 | 0.31           | -    | 0.346          | 0.046 |
| Galwey  | Waterton Lakes N.P., AB       | -   | -    | 1810 | 23  | 2.4  | 75.0 | 0.34           | -    | 0.267          | 0.047 |
| Crandall  | Waterton Lakes N.P., AB       | -   | -    | 1360 | 22  | 2.4  | 81.3 | 0.33           | -    | 0.306          | 0.056 |
| Copper  | Waterton Lakes N.P., AB       | -   | -    | 1400 | 24  | 2.5  | 87.5 | 0.28           | -    | 0.246          | 0.040 |
| Prairie I   | Waterton Lakes N.P., AB       | -   | -    | 1300 | 37  | 2.5  | 87.5 | 0.30           | -    | 0.315          | 0.042 |
| Prairie II  | Waterton Lakes N.P., AB       | -   | -    | 1300 | 25  | 2.4  | 75.0 | 0.35           | -    | 0.258          | 0.047 |
| Akamina   | Waterton Lakes N.P., AB       | -   | -    | 2700 | 25  | 2.2  | 81.3 | 0.31           | -    | 0.346          | 0.046 |
| Galwey  | Waterton Lakes N.P., AB       | -   | -    | 1810 | 23  | 2.4  | 75.0 | 0.34           | -    | 0.267          | 0.047 |
| Crandall  | Waterton Lakes N.P., AB       | -   | -    | 1360 | 22  | 2.4  | 81.3 | 0.33           | -    | 0.306          | 0.056 |
| Copper  | Waterton Lakes N.P., AB       | -   | -    | 1400 | 24  | 2.5  | 87.5 | 0.28           | -    | 0.246          | 0.040 |

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**Table S3 – continued from previous page**

| Population  | Location/Comments | Lat  | Long  | Elev | N   | A    | P    | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE) |
|---|-------------------|------|-------|------|-----|------|------|----------------|------|----------------|------|
| <b>(Liu &amp; Furnier, 1993)</b>                  |                   |      |       |      |     |      |      |                |      |                |      |
| LIU1993   | MI, MN, WI        | -    | -     | -    | 118 | 2.8  | 77   | 0.19           | 0.05 | 0.32           | 0.06 |
| <b>(Lund <i>et al.</i>, 1992)</b>                 |                   |      |       |      |     |      |      |                |      |                |      |
| A   | MN                | -    | -     | -    | 40  | 2.7  | 90   | 0.205          | -    | 0.206          | -    |
| B   | MN                | -    | -     | -    | 38  | 2.7  | 100  | 0.224          | -    | 0.235          | -    |
| C   | MN                | -    | -     | -    | 40  | 2.6  | 90   | 0.205          | -    | 0.215          | -    |
| D   | MN                | -    | -     | -    | 40  | 2.8  | 100  | 0.235          | -    | 0.244          | -    |
| E   | MN                | -    | -     | -    | 40  | 2.4  | 80   | 0.230          | -    | 0.234          | -    |
| F   | MN                | -    | -     | -    | 40  | 2.7  | 100  | 0.195          | -    | 0.212          | -    |
| G   | MN                | -    | -     | -    | 40  | 2.9  | 100  | 0.242          | -    | 0.232          | -    |
| H   | MN                | -    | -     | -    | 29  | 2.3  | 80   | 0.217          | -    | 0.210          | -    |
| I   | MN                | -    | -     | -    | 40  | 2.2  | 80   | 0.197          | -    | 0.193          | -    |
| <b>(Hyun <i>et al.</i>, 1987)</b>                 |                   |      |       |      |     |      |      |                |      |                |      |
| Moosonee  | ON                | -    | -     | -    | 19  | 2.5  | 80.0 | 0.108          | -    | 0.248          | -    |
| Kenora  | ON                | -    | -     | -    | 29  | 2.9  | 93.3 | 0.119          | -    | 0.233          | -    |
| Cochrane  | ON                | -    | -     | -    | 28  | 2.8  | 66.7 | 0.133          | -    | 0.207          | -    |
| Thunder Bay                                       | ON                | -    | -     | -    | 29  | 2.8  | 73.3 | 0.160          | -    | 0.227          | -    |
| Hearst  | ON                | -    | -     | -    | 27  | 2.9  | 73.3 | 0.101          | -    | 0.234          | -    |
| Sudbury   | ON                | -    | -     | -    | 30  | 2.5  | 86.7 | 0.114          | -    | 0.212          | -    |
| Barrie  | ON                | -    | -     | -    | 10  | 2.1  | 73.3 | 0.140          | -    | 0.246          | -    |
| Simcoe  | ON                | -    | -     | -    | 28  | 1.9  | 86.7 | 0.127          | -    | 0.270          | -    |
| <b><i>Pseudotsuga menziesii</i> (douglas-fir)</b> |                   |      |       |      |     |      |      |                |      |                |      |
| <b>(El-Kassaby &amp; Ritland, 1996)</b>           |                   |      |       |      |     |      |      |                |      |                |      |
| Alberni   | Port Alberni, BC  | 49.2 | 124.8 | -    | 51  | 2.25 | 55   | -              | -    | 0.153          | -    |
| Bowen Island                                      | Bowen Island, BC  | 49.4 | 123.4 | -    | 51  | 2.25 | 55   | -              | -    | 0.162          | -    |
| Cassidy   | Cassidy, BC       | 49.1 | 123.9 | -    | 51  | 2.05 | 45   | -              | -    | 0.146          | -    |
| Caycuse   | Caycuse, BC       | 48.9 | 124.4 | -    | 51  | 2.25 | 50   | -              | -    | 0.186          | -    |

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**Table S3 – continued from previous page**

| Population      | Location/Comments     | Lat  | Long  | Elev | N  | A    | P  | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE) |
|-----------------|-----------------------|------|-------|------|----|------|----|----------------|------|----------------|------|
| Chehalis        | Chehalis, BC          | 46.7 | 123.0 | -    | 51 | 2.15 | 50 | -              | -    | 0.162          | -    |
| Chilliwack High | Chilliwack, BC        | 49.2 | 121.9 | -    | 51 | 2.25 | 60 | -              | -    | 0.159          | -    |
| Chilliwack Low  | Chilliwack, BC        | 49.2 | 121.9 | -    | 51 | 2.20 | 50 | -              | -    | 0.158          | -    |
| Courtenay       | Courtenay, BC         | 49.7 | 125.0 | -    | 51 | 2.20 | 40 | -              | -    | 0.144          | -    |
| Darrington      | Darrington, WA        | 48.3 | 121.6 | -    | 51 | 2.15 | 40 | -              | -    | 0.122          | -    |
| Denman Island   | Denman Island, BC     | 49.5 | 124.8 | -    | 51 | 2.25 | 55 | -              | -    | 0.188          | -    |
| Duncan          | Duncan, BC            | 48.8 | 123.7 | -    | 51 | 2.15 | 60 | -              | -    | 0.169          | -    |
| Empress Mtn.    | Empress Mtn., BC      | 48.4 | 123.7 | -    | 51 | 2.15 | 50 | -              | -    | 0.181          | -    |
| E. Thurlow      | East Thurlow, BC      | 50.4 | 125.4 | -    | 51 | 2.25 | 65 | -              | -    | 0.164          | -    |
| Forbidden Plat. | Forbidden Plateau, BC | 49.7 | 125.2 | -    | 51 | 2.30 | 50 | -              | -    | 0.177          | -    |
| Franklin R.     | Franklin River, BC    | 49.1 | 124.8 | -    | 51 | 2.10 | 50 | -              | -    | 0.151          | -    |
| Gold River      | Gold River, BC        | 49.8 | 126.1 | -    | 51 | 2.10 | 50 | -              | -    | 0.152          | -    |
| Granite Falls   | Granite Falls, WA     | 48.1 | 122.0 | -    | 51 | 2.10 | 40 | -              | -    | 0.139          | -    |
| Haney           | Haney, BC             | 49.2 | 122.6 | -    | 51 | 2.10 | 55 | -              | -    | 0.160          | -    |
| Harrison Lake   | Harrison Lake, BC     | 49.3 | 121.8 | -    | 51 | 2.05 | 55 | -              | -    | 0.166          | -    |
| Hernando Is.    | Hernando Island, BC   | 50.0 | 124.9 | -    | 51 | 2.05 | 65 | -              | -    | 0.181          | -    |
| Hoh             | Hoh, WA               | 47.9 | 123.9 | -    | 51 | 2.30 | 70 | -              | -    | 0.181          | -    |
| Hope            | Hope, BC              | 49.4 | 121.4 | -    | 51 | 2.10 | 50 | -              | -    | 0.126          | -    |
| Jervis          | Jervis Inlet, BC      | 50.2 | 124.0 | -    | 51 | 2.15 | 50 | -              | -    | 0.164          | -    |
| Jeune Landing   | Jeune Landing, BC     | 50.4 | 127.5 | -    | 51 | 2.15 | 55 | -              | -    | 0.185          | -    |
| Jordan River    | Jordan River, BC      | 48.4 | 124.0 | -    | 51 | 2.20 | 55 | -              | -    | 0.169          | -    |
| Kaouk River     | Kaouk River, BC       | 50.1 | 127.1 | -    | 51 | 2.15 | 55 | -              | -    | 0.189          | -    |
| Klinaklini High | Klinaklini, BC        | 51.3 | 125.8 | -    | 51 | 2.00 | 55 | -              | -    | 0.190          | -    |
| Klinaklini Low  | Klinaklini, BC        | 51.3 | 125.8 | -    | 51 | 2.00 | 65 | -              | -    | 0.157          | -    |
| Kelsey Bay      | Kelsey Bay, BC        | 50.4 | 126.0 | -    | 51 | 2.10 | 55 | -              | -    | 0.160          | -    |
| Kennedy Lake    | Kennedy Lake, BC      | 49.0 | 125.6 | -    | 51 | 1.75 | 45 | -              | -    | 0.138          | -    |
| Malcolm Island  | Malcolm Island, BC    | 50.6 | 127.0 | -    | 51 | 1.90 | 40 | -              | -    | 0.143          | -    |
| Mead Cr.        | Mead Creek, BC        | 48.8 | 124.1 | -    | 51 | 2.35 | 50 | -              | -    | 0.181          | -    |
| Nimpkish        | Nimpkish, BC          | 50.3 | 126.9 | -    | 51 | 2.15 | 65 | -              | -    | 0.169          | -    |

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**Table S3 – continued from previous page**

| Population                        | Location/Comments          | Lat         | Long         | Elev | N   | A    | P     | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)  |
|-----------------------------------|----------------------------|-------------|--------------|------|-----|------|-------|----------------|------|----------------|-------|
| Nanaimo L.                        | Nanaimo Lake, BC           | <i>49.1</i> | <i>124.2</i> | -    | 51  | 2.15 | 45    | -              | -    | 0.166          | -     |
| Parksville                        | Parksville, BC             | <i>49.3</i> | <i>124.3</i> | -    | 51  | 2.20 | 55    | -              | -    | 0.146          | -     |
| Pitt River                        | Pitt River, BC             | <i>49.3</i> | <i>122.6</i> | -    | 51  | 2.05 | 50    | -              | -    | 0.171          | -     |
| Port Hardy                        | Port Hardy, BC             | <i>50.7</i> | <i>127.5</i> | -    | 51  | 2.20 | 55    | -              | -    | 0.198          | -     |
| Powell River                      | Powell River, BC           | <i>49.9</i> | <i>124.6</i> | -    | 51  | 2.15 | 50    | -              | -    | 0.161          | -     |
| Quadra Island                     | Quadra Island, BC          | <i>50.1</i> | <i>125.3</i> | -    | 51  | 2.05 | 65    | -              | -    | 0.167          | -     |
| San Juan R.                       | San Juan River, BC         | <i>48.5</i> | <i>124.0</i> | -    | 51  | 2.15 | 50    | -              | -    | 0.157          | -     |
| Sechelt                           | Sechelt, BC                | <i>49.5</i> | <i>123.8</i> | -    | 51  | 2.05 | 50    | -              | -    | 0.158          | -     |
| Shelton                           | Shelton, WA                | <i>47.2</i> | <i>123.1</i> | -    | 51  | 2.10 | 45    | -              | -    | 0.148          | -     |
| Sooke                             | Sooke, BC                  | <i>48.4</i> | <i>123.7</i> | -    | 51  | 2.20 | 55    | -              | -    | 0.161          | -     |
| Squamish                          | Squamish, BC               | <i>49.7</i> | <i>123.2</i> | -    | 51  | 2.20 | 55    | -              | -    | 0.169          | -     |
| Stella Lake                       | Stella Lake, BC            | <i>50.3</i> | <i>125.5</i> | -    | 51  | 2.15 | 45    | -              | -    | 0.160          | -     |
| Tahsis                            | Tahsis, BC                 | <i>49.9</i> | <i>126.7</i> | -    | 51  | 2.15 | 50    | -              | -    | 0.154          | -     |
| Texada Island                     | Texada Island, BC          | <i>49.7</i> | <i>124.6</i> | -    | 51  | 2.05 | 55    | -              | -    | 0.171          | -     |
| Tinhat Mtn.                       | Tinhat Mtn., BC            | <i>49.9</i> | <i>124.4</i> | -    | 51  | 2.25 | 45    | -              | -    | 0.163          | -     |
| Toba River                        | Toba River, BC             | <i>50.5</i> | <i>124.3</i> | -    | 51  | 2.25 | 55    | -              | -    | 0.172          | -     |
| <b>(Yeh &amp; O'Malley, 1980)</b> |                            |             |              |      |     |      |       |                |      |                |       |
| I                                 | South Vancouver Island, BC | 48.55       | 124.08       | 244  | 100 | 2.33 | 42.86 | -              | -    | 0.156          | 0.041 |
| II                                | South Vancouver Island, BC | 48.87       | 123.75       | 457  | 100 | 2.33 | 57.14 | -              | -    | 0.156          | 0.035 |
| III                               | Skagit Valley, BC          | 49.23       | 121.23       | 930  | 100 | 2.29 | 52.38 | -              | -    | 0.168          | 0.040 |
| IV                                | Lower Mainland, BC         | 49.25       | 122.35       | 152  | 100 | 2.29 | 47.62 | -              | -    | 0.161          | 0.041 |
| V                                 | Hope, BC                   | 49.50       | 121.35       | 884  | 100 | 2.10 | 57.14 | -              | -    | 0.149          | 0.039 |
| VI                                | Halfmoon Bay, BC           | 49.50       | 123.87       | 175  | 100 | 2.34 | 47.62 | -              | -    | 0.139          | 0.038 |
| VII                               | North Vancouver Island, BC | 49.87       | 125.83       | 250  | 100 | 2.14 | 47.62 | -              | -    | 0.142          | 0.036 |
| VIII                              | North Vancouver Island, BC | 50.25       | 125.73       | 137  | 100 | 2.05 | 47.62 | -              | -    | 0.140          | 0.037 |
| IX                                | West Lillooet, BC          | 50.53       | 122.47       | 457  | 100 | 1.91 | 61.91 | -              | -    | 0.167          | 0.041 |
| X                                 | West Lillooet, BC          | 50.57       | 122.53       | 1067 | 100 | 2.29 | 57.14 | -              | -    | 0.184          | 0.042 |
| XI                                | Bella Coola, BC            | 52.42       | 126.25       | 244  | 100 | 2.05 | 47.62 | -              | -    | 0.140          | 0.041 |

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**Table S3 – continued from previous page**

| Population   | Location/Comments          | Lat    | Long    | Elev | N   | A    | P     | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)  |
|--|----------------------------|--------|---------|------|-----|------|-------|----------------|------|----------------|-------|
| <b>(Hamrick <i>et al.</i>, 1979)</b>   |                            |        |         |      |     |      |       |                |      |                |       |
| YEH  | 11 pop., Interior BC       | -      | -       | -    | -   | 2.23 | -     | -              | -    | 0.180          | -     |
| MORRIS   | 11 pop., Coastal CA        | -      | -       | -    | -   | 3.17 | 74.2  | -              | -    | 0.332          | -     |
| CONKLE   | 1 pop., Interior CA        | -      | -       | -    | -   | 1.78 | 100   | -              | -    | 0.330          | -     |
| HAMRICK  | 5 pop., Eastern CO         | -      | -       | -    | -   | 1.86 | 64.0  | -              | -    | 0.264          | -     |
| <b><i>Sequoia sempervirens</i> (coast redwood) *not included in analysis</b> |                            |        |         |      |     |      |       |                |      |                |       |
| <b>(Rogers, 1994)</b>  |                            |        |         |      |     |      |       |                |      |                |       |
| High Rock River Access   | Humboldt Redwoods S.P., CA | -      | -       | 50   | 121 | 3.00 | 80    | -              | -    | -              | -     |
| Kent Grove   | Humboldt Redwoods S.P., CA | -      | -       | 55   | 121 | 3.25 | 92    | -              | -    | -              | -     |
| Grasshopper Hill   | Humboldt Redwoods S.P., CA | -      | -       | 213  | 121 | 3.25 | 83    | -              | -    | -              | -     |
| Squaw Creek Ridge  | Humboldt Redwoods S.P., CA | -      | -       | 210  | 121 | 2.92 | 75    | -              | -    | -              | -     |
| <b><i>Thuja plicata</i> (western redcedar)</b>                               |                            |        |         |      |     |      |       |                |      |                |       |
| <b>(Yeh, 1988)</b>   |                            |        |         |      |     |      |       |                |      |                |       |
| 1 - Cowichan Lake  | Interior BC                | 48.817 | 124.167 | 161  | 20  | 1.16 | 15.79 | 0.44           | -    | 0.050          | 0.031 |
| 2 - Salmo  | Interior BC                | 49.183 | 117.250 | 610  | 30  | 1.16 | 15.79 | 0.32           | -    | 0.038          | 0.026 |
| 3 - Tashme   | Interior BC                | 49.333 | 121.283 | 734  | 30  | 1.16 | 15.79 | 0.42           | -    | 0.036          | 0.026 |
| 4 - Kootney Lake   | Interior BC                | 49.667 | 116.667 | 532  | 30  | 1.21 | 15.79 | 0.55           | -    | 0.051          | 0.031 |
| 5 - Kamloops   | Interior BC                | 50.700 | 120.333 | 344  | 30  | 1.16 | 15.79 | 0.32           | -    | 0.035          | 0.026 |
| 6 - Revelstoke   | Interior BC                | 51.033 | 118.250 | 610  | 30  | 1.11 | 10.53 | 0.30           | -    | 0.036          | 0.027 |
| 7 - Adams Lake   | Interior BC                | 51.217 | 119.500 | 404  | 30  | 1.21 | 21.05 | 0.29           | -    | 0.037          | 0.026 |
| 8 - Quesnel Lake   | Interior BC                | 52.617 | 120.967 | 697  | 30  | 1.16 | 15.79 | 0.24           | -    | 0.031          | 0.026 |
| <b>(El-Kassaby <i>et al.</i>, 1994)</b>                                      |                            |        |         |      |     |      |       |                |      |                |       |
| Strait of Juan De Fuca   | 2 pop., Van Isl & BC Coast | -      | -       | -    | 28  | 1.0  | 12    | -              | -    | 0.06           | -     |
| <b>(Copes, 1981)</b>   |                            |        |         |      |     |      |       |                |      |                |       |
| COPEs  | 5 pop., WA, OR             | -      | -       | -    | 49  | 1.0  | 0     | 0              | 0    | 0              | 0     |

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**Table S3 – continued from previous page**

| Population   | Location/Comments   | Lat    | Long    | Elev | N  | A   | P    | H <sub>o</sub> | (SE)  | H <sub>e</sub> | (SE)  |
|--|---------------------|--------|---------|------|----|-----|------|----------------|-------|----------------|-------|
| <b><i>Tsuga heterophylla</i> (western hemlock)</b> |                     |        |         |      |    |     |      |                |       |                |       |
| <b>(El-Kassaby <i>et al.</i>, 2003)</b>            |                     |        |         |      |    |     |      |                |       |                |       |
| OG-TSUGHET   | Campbell River, BC  | 49.917 | 125.417 | 795  | 30 | 1.6 | 38.1 | 0.098          | -     | 0.113          | -     |
| <b>(Wellman, 2004)</b>                             |                     |        |         |      |    |     |      |                |       |                |       |
| HOLBERG  | Holberg, BC         | 50.38  | 128.05  | 92   | 49 | 2.0 | 50.0 | 0.143          | 0.071 | 0.171          | 0.051 |
| TOBA   | Toba River, BC      | 50.30  | 124.10  | 366  | 49 | 1.9 | 50.0 | 0.149          | 0.072 | 0.146          | 0.045 |
| UCONA  | Ucona River, BC     | 49.40  | 126.00  | 475  | 49 | 1.9 | 50.0 | 0.131          | 0.069 | 0.145          | 0.045 |
| FLEET  | Fleet River, BC     | 48.38  | 124.04  | 370  | 50 | 1.6 | 28.6 | 0.117          | 0.071 | 0.132          | 0.054 |
| SOMBRIO  | Sombrio Creek, BC   | 48.32  | 124.18  | 365  | 50 | 1.6 | 42.9 | 0.143          | 0.075 | 0.147          | 0.052 |
| CAMPER   | Camper Creek, BC    | 48.34  | 124.30  | 300  | 50 | 1.4 | 28.6 | 0.119          | 0.075 | 0.114          | 0.051 |
| SECHELT  | Sechelt, BC         | -      | -       | -    | 52 | 1.6 | 42.9 | 0.160          | 0.076 | 0.148          | 0.049 |
| NANAIMO  | Nanimo River, BC    | 49.00  | 124.10  | 550  | 50 | 1.9 | 35.7 | 0.140          | 0.072 | 0.131          | 0.046 |
| UBC  | UBC Res. Forest, BC | 49.17  | 122.33  | 275  | 49 | 1.7 | 28.6 | 0.112          | 0.073 | 0.137          | 0.054 |
| KAOUK  | Kaouk, BC           | 50.05  | 126.59  | 60   | 50 | 1.6 | 42.9 | 0.149          | 0.075 | 0.147          | 0.053 |
| UNKNOWN  | Unknown natural, BC | 48.50  | 123.45  | 600  | 49 | 1.5 | 42.9 | 0.161          | 0.079 | 0.131          | 0.048 |
| <b><i>Tsuga mertensia</i> (mountain hemlock)</b>   |                     |        |         |      |    |     |      |                |       |                |       |
| <b>(Ally <i>et al.</i>, 2000)</b>                  |                     |        |         |      |    |     |      |                |       |                |       |
| A - Meade Crk.                                     | Meade Crk. , BC     | 48.55  | 124.05  | 1067 | 40 | 1.9 | 36.8 | -              | -     | 0.092          | 0.026 |
| B - Wakeman High                                   | Wakeman High , BC   | 51.10  | 126.25  | 1100 | 40 | 1.7 | 42.1 | -              | -     | 0.097          | 0.028 |
| C - Hanna Ridge                                    | Hanna Ridge , BC    | 56.18  | 129.20  | 700  | 40 | 1.5 | 31.6 | -              | -     | 0.065          | 0.023 |
| D - Wakeman Low                                    | Wakeman Low , BC    | 51.17  | 126.17  | 600  | 40 | 1.6 | 42.1 | -              | -     | 0.084          | 0.025 |
| E - Garbage Crk.                                   | Garbage Crk. , BC   | 48.33  | 124.06  | 850  | 40 | 1.6 | 31.6 | -              | -     | 0.106          | 0.040 |
| F - Mission  | Mission , BC        | 49.18  | 122.26  | 900  | 40 | 1.7 | 31.6 | -              | -     | 0.122          | 0.042 |
| G - Lyon Lk.                                       | Lyon Lk. , BC       | 49.39  | 123.54  | 1005 | 40 | 1.4 | 26.3 | -              | -     | 0.068          | 0.028 |
| H - Parksville                                     | Parksville , BC     | 49.16  | 124.33  | 824  | 40 | 1.6 | 31.6 | -              | -     | 0.102          | 0.033 |
| I - Mayo Crk.                                      | Mayo Crk. , BC      | 54.47  | 129.02  | 683  | 40 | 1.7 | 36.8 | -              | -     | 0.088          | 0.027 |
| J - Zeballos                                       | Zeballos , BC       | 50.10  | 126.47  | 700  | 40 | 1.3 | 21.1 | -              | -     | 0.050          | 0.025 |
| K - Kearsley Crk.                                  | Kearsley Crk. , BC  | 49.19  | 122.22  | 1280 | 40 | 1.7 | 42.1 | -              | -     | 0.106          | 0.036 |

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**Table S3 – continued from previous page**

| Population        | Location/Comments  | Lat   | Long   | Elev | N  | A   | P    | H <sub>o</sub> | (SE) | H <sub>e</sub> | (SE)         |
|-------------------|--------------------|-------|--------|------|----|-----|------|----------------|------|----------------|--------------|
| L - Blue Ox Crk.  | Blue Ox Crk. , BC  | 50.18 | 127.16 | 660  | 40 | 1.2 | 10.5 | -              | -    | 0.056          | <i>0.036</i> |
| M - Hkusam Mt.    | Hkusam Mt. , BC    | 50.20 | 125.50 | 950  | 40 | 1.4 | 31.6 | -              | -    | 0.075          | <i>0.028</i> |
| N - Port Alice    | Port Alice , BC    | 50.24 | 124.27 | 750  | 40 | 1.4 | 26.3 | -              | -    | 0.086          | <i>0.035</i> |
| O - Sale Mt.      | Sale Mt. , BC      | 51.10 | 118.10 | 1700 | 40 | 1.2 | 10.5 | -              | -    | 0.050          | <i>0.034</i> |
| P - HODOO Crk.    | HODOO Crk. , BC    | 51.20 | 125.32 | 1250 | 40 | 1.6 | 31.6 | -              | -    | 0.095          | <i>0.030</i> |
| Q - Copper Canyon | Copper Canyon , BC | 48.56 | 124.13 | 1100 | 40 | 1.8 | 47.4 | -              | -    | 0.120          | <i>0.057</i> |
| R - Ashley Crk.   | Ashley Crk. , BC   | 50.01 | 123.33 | 1000 | 40 | 1.7 | 36.8 | -              | -    | 0.109          | <i>0.034</i> |
| S - Woss Lk.      | Woss Lk. , BC      | 50.07 | 126.35 | 900  | 40 | 1.6 | 36.8 | -              | -    | 0.082          | <i>0.027</i> |

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