

Table 4. Environmental variables for the R4D permanent vegetation plots

| Plot | Date Sampled | Land-form | Terrain Unit | Slope (°) | Aspect (°) | Exposure (Scalar) | Surface Form | Micro-site | % Cover of Microsite | Site Moisture (Scalar) | Estimated Snow Duration (Scalar) | Snow Depth (cm, 5/17/87)* | Stability (Scalar) | Cryoturbation (%) | Height of Micro-relief (cm) |
|-------|--------------|-----------|--------------|-----------|------------|-------------------|--------------|------------|----------------------|------------------------|----------------------------------|---------------------------|--------------------|-------------------|-----------------------------|
| SW01 | 8/1/84 | 2 | 8 | 5 | 260 | 2.0 | 16 | | | 7.0 | 5.0 | 46 | 3.0 | 0 | 20 |
| SW02 | 8/1/84 | 2 | 8 | 7 | 260 | 2.0 | 10 | | | 9.0 | 1.5 | | 4.0 | 0 | 22 |
| SW03 | 8/3/84 | 2 | 8 | 7 | 260 | 2.0 | 16 | | | 7.0 | 4.5 | 41 | 1.5 | 0 | 26 |
| SW04A | 8/3/84 | 2 | 8 | 7 | 260 | 2.0 | 11 | 5 | 30 | 8.0 | 3.8 | 35 | 2.8 | 0 | 18 |
| SW04B | 8/3/84 | 2 | 8 | 7 | 260 | 2.0 | 11 | 6 | 70 | 7.5 | 4.0 | | 2.0 | 0 | |
| SW05 | 8/3/84 | 2 | 8 | 6 | 260 | 2.0 | 11 | | | 8.0 | 4.0 | 53 | 2.0 | 0 | 18 |
| SW06 | 8/3/84 | 2 | 8 | 7 | 260 | 2.0 | 4 | | | 7.0 | 4.5 | 30 | 3.2 | 0 | 18 |
| SW07 | 8/3/84 | 2 | 8 | 7 | 260 | 2.0 | 11 | | | 8.0 | 4.5 | 49 | 3.5 | 0 | 15 |
| SW08 | 8/3/84 | 2 | 8 | 7 | 260 | 2.0 | 16 | | | 6.5 | 4.5 | 38 | 1.8 | 0 | 20 |
| SW09 | 8/4/84 | 2 | 2 | 3 | 260 | 3.0 | 15 | | | 3.5 | 2.0 | 10 | 1.5 | 0.3 | 3 |
| SW10 | 8/4/84 | 2 | 8 | 4 | 260 | 2.0 | 10 | | | 7.0 | 5.0 | | 2.0 | 0 | 17 |
| SW11 | 8/4/84 | 2 | 8 | 5 | 260 | 2.0 | 11 | | | 8.5 | 4.0 | 60 | 3.5 | 0 | 15 |
| SW12 | 8/4/84 | 2 | 8 | 7 | 260 | 2.0 | 16 | | | 7.0 | 4.0 | 52 | 1.8 | 0 | 20 |
| SW13 | 8/4/84 | 3 | 8 | 6 | 270 | 2.0 | 4 | | | 7.5 | 5.0 | 71 | 2.5 | 0 | 28 |
| SW14 | 8/4/84 | 11 | 5 | 0 | | 1.8 | 16 | | | 7.8 | 5.5 | 46 | 2.0 | 0 | 18 |
| SW15 | 8/4/84 | 11 | 5 | 0 | | 1.8 | 16 | | | 7.0 | 5.0 | 45 | 1.5 | 0 | 12 |
| SW16 | 8/5/84 | 4 | 5 | 2 | 350 | 1.5 | 16 | | | 9.5 | 4.5 | | 4.5 | 0 | 4 |
| SW17 | 8/5/84 | 3 | 8 | 5 | 270 | 2.0 | 16 | | | 7.0 | 5.5 | 50 | 1.5 | 0 | 18 |
| SW18 | 8/5/84 | 4 | 7 | 1 | 350 | 1.5 | 8 | | | 9.0 | 5.5 | 70 | 4.0 | 0 | 12 |
| SW19 | 8/5/84 | 5 | 7 | 3 | 300 | 2.0 | 16 | | | 7.5 | 5.5 | 41 | 1.5 | 0 | 12 |
| SW20 | 8/5/84 | 11 | 7 | 3 | 280 | 1.8 | 16 | | | 8.0 | 5.0 | | 1.5 | 0 | 12 |
| SW21A | 8/5/84 | 11 | 7 | 0 | | 1.8 | 8 | 2 | 92 | 8.0 | 4.0 | 53 | 2.0 | 0 | 0 |
| SW21B | 8/5/84 | 11 | 7 | 0 | | 1.8 | 8 | 1 | 8 | 6.0 | 3.0 | | 2.5 | 0 | 20 |
| SW22A | 8/5/84 | 11 | 7 | 1 | 350 | 1.8 | 8 | 2 | 80 | 8.0 | 4.0 | | 1.5 | 0 | 0 |
| SW22B | 8/5/84 | 11 | 7 | 1 | 350 | 1.8 | 8 | 1 | 20 | 7.0 | 3.5 | | 1.8 | 0 | 15 |
| SW23 | 8/5/84 | 4 | 5 | 0 | | 1.5 | 16 | | | 10.0 | 4.5 | | 4.3 | 0 | 3 |
| SW24 | 8/6/84 | 11 | 7 | 0 | | 2.0 | 6 | | | 5.0 | 3.5 | 30 | 2.0 | 0 | 22 |
| SW25A | 8/6/84 | 11 | 7 | 1 | 300 | 1.8 | 8 | 1 | 50 | 7.0 | 3.8 | | 2.0 | 0 | 15 |

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|-------|--------------|-----------|--------------|-----------|------------|-------------------|--------------|------------|----------------------|------------------------|----------------------------------|---------------------------|--------------------|-------------------|-----------------------------|
| SW25B | 8/6/84 | 11 | 7 | 1 | 300 | 1.8 | 8 | 2 | 50 | 9.0 | 4.0 | | 1.0 | 0 | 0 |
| SW26 | 8/6/84 | 1 | 8 | 4 | 80 | 3.0 | 2 | | | 4.5 | 3.0 | 50 | 3.0 | 1 | 15 |
| SW27 | 8/6/84 | 1 | 8 | 3 | 80 | 3.0 | 16 | | | 6.0 | 3.0 | 63 | 3.0 | 0 | 20 |
| SW28 | 8/6/84 | 1 | 2 | 0 | | 3.5 | 15 | | | 3.0 | 2.0 | 8 | 2.0 | 0 | 3 |
| SW29A | 8/6/84 | 1 | 2 | 2 | 70 | 2.5 | 2 | 4 | 75 | 6.0 | 3.0 | | 1.5 | 0 | 10 |
| SW29B | 8/6/84 | 1 | 2 | 2 | 70 | 2.5 | 2 | 3 | 25 | 4.0 | 3.0 | | 5.0 | 25 | 10 |
| SW30A | 8/7/84 | 1 | 2 | 1 | 90 | 3.0 | 2 | 4 | 80 | 4.0 | 3.0 | 32 | 2.0 | 0.3 | 12 |
| SW30B | 8/7/84 | 1 | 2 | 1 | 90 | 3.0 | 2 | 3 | 20 | 3.5 | 3.0 | | 5.0 | 20 | 12 |
| SW31 | 8/7/84 | 1 | 2 | 2 | 90 | 2.9 | 16 | | | 6.0 | 4.0 | 56 | 1.8 | 0 | 15 |
| SW32A | 8/7/84 | 1 | 2 | 2 | 90 | 2.8 | 2 | 4 | 75 | 4.0 | 4.5 | 38 | 1.5 | 0 | 10 |
| SW32B | 8/7/84 | 1 | 2 | 2 | 90 | 2.8 | 2 | 3 | 25 | 3.0 | 4.5 | | 5.0 | 99 | 2 |
| SW33 | 8/7/84 | 2 | 2 | 15 | 120 | 3.7 | 15 | | | 3.0 | 2.0 | 0 | 1.5 | 0 | 2 |
| SW34 | 8/7/84 | 2 | 8 | 7 | 90 | 1.5 | 11 | | | 8.0 | 5.0 | 71 | 3.5 | 0 | 10 |
| SW35A | 8/7/84 | 2 | 8 | 8 | 90 | 1.5 | 4 | 7 | 70 | 7.0 | 5.0 | 80 | 3.0 | 0 | 28 |
| SW35B | 8/7/84 | 2 | 8 | 8 | 90 | 1.5 | 4 | 8 | 30 | 8.0 | 5.0 | | 3.0 | 0 | 28 |
| SW36A | 8/7/84 | 2 | 8 | 7 | 90 | 1.5 | 4 | 7 | 60 | 6.0 | 5.5 | | 3.0 | 0 | 22 |
| SW36B | 8/7/84 | 2 | 8 | 7 | 90 | 1.5 | 4 | 8 | 40 | 8.0 | 5.5 | | 3.0 | 0 | 22 |
| SW37 | 8/7/84 | 12 | 10 | 0 | | 1.0 | 18 | | | 10.0 | 4.0 | | 5.0 | 0 | 3 |
| SW38 | 8/8/84 | 1 | 2 | 4 | 225 | 3.5 | 15 | | | 4.0 | 2.5 | 82 | 1.2 | 0 | 8 |
| SW39 | 8/8/84 | 1 | 2 | 2 | 220 | 3.3 | 7 | | | 4.0 | 2.5 | 25 | 1.5 | 0 | 8 |
| SW40 | 8/8/84 | 2 | 2 | 8 | 80 | 1.5 | 15 | | | 5.0 | 6.0 | | 1.5 | 0 | 8 |
| SW41 | 8/8/84 | 2 | 2 | 5 | 70 | 1.5 | 15 | | | 6.0 | 6.0 | 82 | 2.0 | 0 | 12 |
| SW42 | 8/19/85 | 2 | 2 | 5 | 180 | 3.8 | 15 | | | 3.0 | 2.0 | 13 | 1.5 | 5 | 15 |
| SW43 | 8/21/85 | 1 | 2 | 0 | | 3.0 | 15 | | | 4.0 | 2.5 | 34 | 1.0 | 1 | 10 |
| SW44A | 8/21/85 | 2 | 2 | 3 | 270 | 2.5 | 2 | 4 | 90 | 4.5 | 3.0 | | 2.0 | 10 | 15 |
| SW44B | 8/21/85 | 2 | 2 | 3 | 270 | 2.5 | 2 | 3 | 10 | 3.5 | 3.0 | | 5.0 | 99 | 2 |
| SW45 | 8/21/85 | 2 | 2 | 2 | 270 | 2.5 | 16 | | | 7.0 | 3.5 | | 2.5 | 0 | 20 |
| SW46 | 8/23/85 | 3 | 8 | 4 | 68 | 1.5 | 16 | | | 7.0 | 5.0 | 54 | 2.8 | 0 | 15 |
| SW47 | 8/23/85 | 4 | 5 | 1 | 360 | 1.5 | 16 | | | 8.0 | 5.0 | 77 | 4.0 | 0 | 15 |

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|-------|--------------|-----------|--------------|-----------|------------|-------------------|--------------|------------|----------------------|------------------------|----------------------------------|---------------------------|--------------------|-------------------|-----------------------------|
| SW48 | 8/23/85 | 3 | 8 | 6 | 315 | 1.8 | 16 | | | 7.0 | 5.0 | 40 | 2.5 | 0 | 10 |
| SW49 | 8/23/85 | 2 | 5 | 6 | 338 | 1.5 | 11 | | | 9.0 | 4.0 | 66 | 4.0 | 0 | 15 |
| SW50 | 8/23/85 | 2 | 8 | 6 | 270 | 2.0 | 16 | | | 6.5 | 4.0 | | 1.5 | 0 | 20 |
| SW51 | 8/24/85 | 3 | 8 | 20 | 315 | 2.0 | 16 | | | 4.0 | 6.0 | 16 | 2.3 | 0 | 7 |
| SW52 | 8/24/85 | 2 | 1 | 30 | 200 | 3.7 | 16 | | | 3.0 | 2.0 | 0 | 2.5 | 0 | 5 |
| SW53 | 8/24/85 | 2 | 1 | 20 | 225 | 3.5 | 16 | | | 3.0 | 1.5 | 0 | 3.5 | 0 | 3 |
| SW54 | 8/24/85 | 1 | 1 | 15 | 270 | 4.0 | 16 | | | 3.0 | 1.0 | 1 | 4.0 | 0 | 3 |
| SW55 | 8/24/85 | 2 | 1 | 25 | 338 | 2.0 | 3 | | | 5.0 | 7.0 | | 2.5 | 0 | 20 |
| SW56 | 8/25/85 | 2 | 1 | 35 | 360 | 2.5 | 3 | | | 4.0 | 7.1 | 76 | 1.5 | 0 | 20 |
| SW57 | 8/25/85 | 2 | 1 | 20 | 360 | 2.5 | 3 | | | 4.0 | 6.0 | 67 | 1.5 | 0 | 10 |
| SW58A | 8/25/85 | 1 | 1 | 2 | 180 | 4.0 | 7 | | | 2.0 | 1.0 | 5 | 4.0 | 0 | 2 |
| SW58B | 8/25/85 | 1 | 1 | 2 | 180 | 4.0 | 7 | | | 2.0 | 1.0 | | 4.0 | 0 | 2 |
| SW59 | 8/25/85 | 2 | 8 | 10 | 225 | 2.0 | 16 | | | 5.0 | 5.5 | 87 | 1.5 | 0 | 10 |
| SW60 | 8/26/85 | 2 | 8 | 25 | 180 | 2.5 | 16 | | | 4.0 | 5.0 | 34 | 1.5 | 0 | 15 |
| SW61 | 8/26/85 | 2 | 8 | 10 | 270 | 2.0 | 16 | | | 6.5 | 4.0 | 75 | 1.2 | 0 | 20 |
| SW62 | 8/26/85 | 2 | 8 | 2 | 315 | 2.0 | 16 | | | 7.0 | 4.0 | 29 | 1.0 | 0 | 20 |
| SW63 | 8/26/85 | 1 | 2 | 2 | 90 | 2.0 | 1 | | | 1.5 | 4.0 | | 1.0 | 0 | 25 |
| SW64 | 8/27/85 | 1 | 2 | 0 | | 2.0 | 1 | | | 1.5 | 3.5 | 33 | 1.0 | 0 | 50 |
| SW65 | 8/26/85 | 12 | 10 | 0 | | 1.0 | 18 | | | 10.0 | 4.0 | 43 | 2.0 | 0 | |
| SW66 | 8/27/85 | 4 | 10 | 0 | | 1.0 | 18 | | | 10.0 | 4.0 | | 4.0 | 0 | 10 |
| SW67 | 8/29/85 | 11 | 7 | 0 | | 2.0 | 5 | | | 5.0 | 4.0 | | 1.0 | 0 | 15 |
| SW68 | 8/29/85 | 4 | 5 | 2 | 90 | 1.5 | 16 | | | 5.0 | 5.0 | | 4.0 | 0 | 10 |
| SW69 | 8/30/85 | 1 | 8 | 0 | | 2.0 | 7 | | | 6.5 | 4.0 | | 5.0 | 99 | 5 |
| SW70 | 8/30/85 | 1 | 8 | 0 | | 2.0 | 7 | | | 6.0 | 4.0 | | 5.0 | 99 | 5 |
| SW71 | 8/31/85 | 2 | 8 | 2 | 90 | 2.0 | 7 | | | 7.0 | 4.5 | | 5.0 | 90 | 10 |
| SW72 | 9/1/85 | 2 | 1 | 30 | 350 | 1.5 | 3 | | | 4.0 | 7.3 | 122 | 1.5 | 0 | 25 |
| SW73 | 9/1/85 | 3 | 8 | 5 | 25 | 1.5 | 16 | | | 6.0 | 7.3 | 137 | 2.0 | 0 | 5 |

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| Plot | Tussock Thaw Depth (cm) | Inter-tussock Thaw Depth (cm) | Bare Soil (%) | Rock Cover (%) | Soil Type | Soil Moisture | Low Shrub Cover (%) | Dwarf Shrub Cover (%) | Average Shrub Height (cm) | Tussock Graminoid Cover (%) | Non-tussock Graminoid Cover (%) | Forb Cover (%) | Lichen Cover (%) | Bryophyte Cover (%) | Horse-tail Cover (%) |
|-------|-------------------------|-------------------------------|---------------|----------------|-----------|---------------|---------------------|-----------------------|---------------------------|-----------------------------|---------------------------------|----------------|------------------|---------------------|----------------------|
| SW01 | 35 | 22 | 0.0 | 0.0 | 7 | 8.0 | 5.0 | 35.0 | | 2.0 | 18.0 | 0.0 | 0.3 | 80.0 | 0.0 |
| SW02 | 45 | 42 | 0.0 | 0.0 | 2 | 9.0 | 35.0 | 1.0 | 35 | 0.0 | 35.0 | 0.3 | 0.3 | 55.0 | 1.0 |
| SW03 | 46 | 22 | 0.0 | 0.0 | 7 | 8.0 | 1.0 | 30.0 | | 45.0 | 7.0 | 0.3 | 2.0 | 75.0 | 0.0 |
| SW04A | 64 | 48 | 2.0 | 0.0 | 6 | 9.0 | 8.0 | 15.0 | | 40.0 | 11.0 | 3.0 | 0.3 | 60.0 | 0.0 |
| SW04B | | | 0.0 | 0.0 | 7 | | 50.0 | 50.0 | 25 | 0.0 | 25.0 | 6.0 | 1.0 | 70.0 | 0.0 |
| SW05 | | | 2.0 | 0.0 | 6 | 8.0 | 55.0 | 20.0 | 25 | 0.3 | 15.0 | 1.0 | 3.0 | 70.0 | 0.0 |
| SW06 | 43 | 20 | 0.0 | 0.0 | 7 | 7.2 | 20.0 | 30.0 | 18 | 0.3 | 30.0 | 2.0 | 4.0 | 85.0 | 0.0 |
| SW07 | 59 | 43 | 0.0 | 0.0 | 6 | 8.0 | 45.0 | 40.0 | 40 | 15.0 | 15.0 | 3.0 | 0.3 | 80.0 | 0.0 |
| SW08 | 48 | 32 | 0.0 | 0.0 | 6 | 7.5 | 5.0 | 35.0 | 28 | 5.0 | 30.0 | 5.0 | 10.0 | 70.0 | 0.0 |
| SW09 | 99 | | 2.0 | 5.0 | 4 | 3.0 | 0.0 | 50.0 | 3 | 0.0 | 5.0 | 1.0 | 50.0 | 15.0 | 0.0 |
| SW10 | 36 | 20 | 0.0 | 0.0 | 6 | 7.0 | 40.0 | 20.0 | 25 | 0.3 | 15.0 | 7.0 | 1.0 | 90.0 | 0.0 |
| SW11 | | 49 | 30.0 | 0.0 | 6 | 9.0 | 15.0 | 10.0 | 40 | 0.0 | 35.0 | 3.0 | 0.0 | 15.0 | 0.0 |
| SW12 | 49 | 22 | 0.0 | 0.0 | 6 | 8.0 | 15.0 | 50.0 | 25 | 10.0 | 30.0 | 1.0 | 1.0 | 70.0 | 0.0 |
| SW13 | 39 | 18 | 0.0 | 0.0 | 7 | 7.3 | 35.0 | 25.0 | 28 | 5.0 | 25.0 | 1.0 | 1.0 | 75.0 | 0.0 |
| SW14 | 40 | 25 | 0.0 | 0.0 | 9 | 8.0 | 0.0 | 20.0 | 8 | 0.0 | 25.0 | 3.0 | 0.3 | 95.0 | 0.0 |
| SW15 | 33 | 23 | 0.0 | 0.0 | 2 | 8.0 | 0.0 | 60.0 | 12 | 0.3 | 4.0 | 0.3 | 0.3 | 100.0 | 0.0 |
| SW16 | | 67 | 20.0 | 0.0 | 3 | 10.0 | 0.0 | 0.0 | | 0.0 | 90.0 | 0.0 | 0.0 | 0.3 | 0.0 |
| SW17 | 33 | 19 | 0.0 | 0.0 | 7 | 7.0 | 1.0 | 50.0 | 12 | 15.0 | 0.3 | 0.3 | 1.0 | 100.0 | 0.0 |
| SW18 | 60 | 45 | 2.0 | 0.0 | 7 | 9.0 | 0.3 | 25.0 | 22 | 0.0 | 60.0 | 2.0 | 0.0 | 25.0 | 0.0 |
| SW19 | 39 | 28 | 0.0 | 0.0 | 7 | 8.0 | 0.3 | 25.0 | 12 | 0.0 | 20.0 | 0.3 | 0.3 | 100.0 | 0.0 |
| SW20 | 35 | 23 | 0.0 | 0.0 | 7 | 8.5 | 0.0 | 30.0 | 12 | 0.0 | 20.0 | 0.3 | 0.3 | 100.0 | 0.0 |
| SW21A | | 44 | 10.0 | 0.0 | 7 | 8.5 | 0.0 | 0.3 | 2 | 0.0 | 30.0 | 0.3 | 0.0 | 20.0 | 0.0 |
| SW21B | 53 | | 0.0 | 0.0 | 7 | 7.0 | 1.0 | 1.0 | 5 | 0.0 | 1.0 | 0.3 | 1.0 | 3.0 | 0.0 |
| SW22A | | 41 | 15.0 | 0.0 | 2 | 8.0 | 0.0 | 5.0 | 5 | 0.0 | 20.0 | 2.0 | 0.0 | 60.0 | 0.0 |
| SW22B | 57 | | 0.0 | 0.0 | 7 | | 0.3 | 10.0 | 5 | 0.0 | 10.0 | 1.0 | 0.0 | 20.0 | 0.0 |
| SW23 | | 46 | 30.0 | 0.0 | 3 | 10.0 | 0.0 | 0.0 | | 0.0 | 60.0 | 0.3 | 0.0 | 10.0 | 0.0 |
| SW24 | 40 | 21 | 0.0 | 1.0 | 9 | 6.0 | 0.3 | 50.0 | 12 | 20.0 | 0.3 | 0.3 | 40.0 | 65.0 | 0.0 |
| SW25A | 52 | | 0.0 | 0.0 | 0 | 7.0 | 0.3 | 30.0 | 8 | 0.0 | 30.0 | 1.0 | 0.3 | 45.0 | 0.0 |
| SW25B | | 36 | 3.0 | 0.0 | 2 | 8.0 | 0.0 | 0.3 | | 0.0 | 15.0 | 1.0 | 0.0 | 20.0 | 0.0 |

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|-------|-------------------------|-------------------------------|---------------|----------------|-----------|---------------|---------------------|-----------------------|---------------------------|-----------------------------|---------------------------------|----------------|------------------|---------------------|----------------------|
| SW26 | | 99 | 1.0 | 3.0 | 5 | 4.0 | 0.0 | 35.0 | 5 | 0.0 | 10.0 | 2.0 | 50.0 | 50.0 | 0.3 |
| SW27 | | 95 | 0.0 | 0.0 | 1 | 6.0 | 5.0 | 30.0 | 10 | 0.3 | 35.0 | 3.0 | 2.0 | 60.0 | 0.0 |
| SW28 | | | 3.0 | 20.0 | 5 | 3.0 | 0.0 | 40.0 | 1 | 0.0 | 0.3 | 0.3 | 55.0 | 5.0 | 0.0 |
| SW29A | | 50 | 0.0 | 0.3 | 6 | 5.0 | 0.0 | 40.0 | 8 | 0.0 | 10.0 | 2.0 | 60.0 | 55.0 | 0.0 |
| SW29B | | 90 | 10.0 | 15.0 | 8 | 4.0 | 0.0 | 0.3 | 5 | 0.0 | 0.3 | 1.0 | 1.0 | 0.3 | 0.0 |
| SW30A | | 70 | 0.0 | 0.3 | 6 | 5.0 | 0.3 | 40.0 | 8 | 0.0 | 10.0 | 4.0 | 45.0 | 40.0 | 0.0 |
| SW30B | | 80 | 10.0 | 10.0 | 8 | 4.0 | 0.0 | 0.3 | 5 | 0.0 | 0.3 | 0.3 | 1.0 | 1.0 | 0.0 |
| SW31 | | 60 | 0.0 | 0.0 | 6 | 6.0 | 20.0 | 30.0 | | 0.3 | 30.0 | 20.0 | 1.0 | 80.0 | 0.0 |
| SW32A | | 95 | 0.0 | 2.0 | 6 | 5.0 | 0.3 | 50.0 | 8 | 0.0 | 5.0 | 0.3 | 35.0 | 40.0 | 0.0 |
| SW32B | | 100 | 13.0 | 12.0 | 8 | 4.0 | 0.0 | 0.3 | 3 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 | 0.0 |
| SW33 | | | 10.0 | 30.0 | 4 | 2.0 | 0.0 | 50.0 | 3 | 0.0 | 5.0 | 0.3 | 40.0 | 3.0 | 0.0 |
| SW34 | | 61 | 5.0 | 0.0 | 7 | 9.0 | 35.0 | 0.3 | 40 | 0.0 | 60.0 | 20.0 | 0.0 | 45.0 | 0.0 |
| SW35A | 56 | | 0.0 | 0.0 | 7 | 6.0 | 40.0 | 5.0 | 30 | 0.3 | 20.0 | 10.0 | 0.3 | 60.0 | 0.0 |
| SW35B | | 47 | 5.0 | 0.0 | 7 | 9.0 | 5.0 | 5.0 | 30 | 0.0 | 20.0 | 0.3 | 0.0 | 30.0 | 0.0 |
| SW36A | 68 | | 0.0 | 0.0 | 7 | 6.0 | 40.0 | 3.0 | 45 | 0.0 | 22.0 | 5.0 | 0.0 | 45.0 | 0.0 |
| SW36B | | 49 | 5.0 | 0.0 | | 8.5 | 25.0 | 0.3 | | 0.0 | 25.0 | 0.3 | 0.0 | 25.0 | 0.0 |
| SW37 | | 55 | 20.0 | 0.0 | 3 | 10.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 50.0 | 0.0 | 20.0 | 5.0 |
| SW38 | | 100 | 0.0 | 20.0 | 5 | 4.0 | 0.0 | 60.0 | 2 | 0.0 | 1.0 | 0.3 | 60.0 | 15.0 | 0.0 |
| SW39 | | 100 | 0.0 | 10.0 | 5 | 4.5 | 0.0 | 35.0 | 3 | 0.0 | 20.0 | 2.0 | 60.0 | 20.0 | 0.0 |
| SW40 | | 65 | 0.0 | 10.0 | 5 | 4.0 | 0.0 | 50.0 | 6 | 0.0 | 15.0 | 5.0 | 70.0 | 55.0 | 0.0 |
| SW41 | | | 0.0 | 2.0 | 5 | 5.0 | 0.0 | 85.0 | 10 | 0.0 | 5.0 | 5.0 | 45.0 | 50.0 | 0.0 |
| SW42 | | | 1.0 | 15.0 | 5 | 3.5 | 0.0 | 55.0 | | 0.0 | 1.0 | 1.0 | 48.0 | 5.0 | 0.0 |
| SW43 | | | 1.0 | 3.0 | 5 | 3.0 | 0.0 | 35.0 | | 0.0 | 1.0 | 0.0 | 45.0 | 7.0 | 0.0 |
| SW44A | | | 1.0 | 2.0 | 6 | 6.0 | 0.0 | 67.0 | | 0.0 | 10.0 | 1.0 | 50.0 | 45.0 | 0.0 |
| SW44B | | | 40.0 | 50.0 | 6 | | 0.0 | 8.0 | | 0.0 | 2.0 | 0.7 | 1.0 | 9.0 | 0.0 |
| SW45 | 55 | 42 | 0.0 | 0.0 | 7 | 7.0 | 20.0 | 40.0 | | 10.0 | 30.0 | 1.0 | 8.0 | 90.0 | 0.0 |
| SW46 | 32 | 22 | 0.0 | 0.0 | 7 | 7.0 | 65.0 | 35.0 | | 0.3 | 15.0 | 0.3 | 0.3 | 100.0 | 0.0 |
| SW47 | 61 | 40 | 5.0 | 0.0 | 6 | 9.0 | 0.3 | 35.0 | | 0.0 | 45.0 | 2.0 | 0.0 | 75.0 | 0.0 |
| SW48 | 33 | 21 | 0.0 | 0.0 | 6 | 6.0 | 65.0 | 10.0 | | 0.0 | 35.0 | 1.0 | 1.0 | 100.0 | 0.0 |

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|-------|-------------------------|-------------------------------|---------------|----------------|-----------|---------------|---------------------|-----------------------|---------------------------|-----------------------------|---------------------------------|----------------|------------------|---------------------|----------------------|
| SW49 | 52 | 42 | 7.0 | 0.0 | 6 | 9.0 | 55.0 | 5.0 | | 0.0 | 35.0 | 1.0 | 0.0 | 85.0 | 0.0 |
| SW50 | 47 | 34 | 0.0 | 0.0 | 6 | 7.0 | 0.0 | 30.0 | | 40.0 | 10.0 | 2.0 | 5.0 | 60.0 | 0.0 |
| SW51 | | | 1.0 | 0.3 | 5 | 3.0 | 0.0 | 75.0 | | 0.0 | 1.0 | 0.3 | 60.0 | 25.0 | 0.0 |
| SW52 | | | 10.0 | 1.0 | 5 | 2.0 | 0.0 | 50.0 | | 0.0 | 1.0 | 10.0 | 25.0 | 13.0 | 0.0 |
| SW53 | | | 35.0 | 50.0 | 5 | 3.0 | 0.0 | 35.0 | | 0.0 | 1.0 | 5.0 | 20.0 | 3.0 | 0.0 |
| SW54 | | | 5.0 | 65.0 | 5 | 2.0 | 0.0 | 40.0 | | 0.0 | 1.0 | 4.0 | 10.0 | 1.0 | 0.0 |
| SW55 | | | 0.0 | 0.3 | 0 | 5.0 | 0.0 | 80.0 | | 0.0 | 3.0 | 5.0 | 40.0 | 90.0 | 0.0 |
| SW56 | | | 0.0 | 0.3 | 5 | 5.0 | 5.0 | 60.0 | | 0.0 | 3.0 | 2.0 | 10.0 | 100.0 | 0.0 |
| SW57 | | | 0.3 | 0.3 | 5 | 6.0 | 0.0 | 65.0 | | 0.0 | 1.0 | 10.0 | 45.0 | 85.0 | 0.0 |
| SW58A | | | 20.0 | 40.0 | 5 | 2.0 | 0.0 | 70.0 | | 0.0 | 0.7 | 2.0 | 43.0 | 0.7 | 0.0 |
| SW58B | | | 0.0 | 95.0 | 6 | | 0.0 | 0.0 | | 0.0 | 0.3 | 1.0 | 10.0 | 0.0 | 0.0 |
| SW59 | | | 1.0 | 0.3 | 1 | 6.0 | 0.0 | 80.0 | | 0.0 | 5.0 | 10.0 | 30.0 | 25.0 | 0.7 |
| SW60 | | | 0.3 | 0.3 | 5 | 2.0 | 0.0 | 70.0 | | 0.0 | 3.0 | 2.0 | 30.0 | 35.0 | 0.0 |
| SW61 | 43 | 23 | 0.0 | 0.0 | 7 | 6.5 | 5.0 | 35.0 | | 45.0 | 10.0 | 2.0 | 1.0 | 65.0 | 0.0 |
| SW62 | 42 | 26 | 0.0 | 0.0 | 7 | 6.5 | 5.0 | 20.0 | | 45.0 | 10.0 | 2.0 | 1.0 | 75.0 | 0.0 |
| SW63 | | | 0.0 | 95.0 | | | 0.0 | 0.0 | | 0.0 | 0.1 | 0.0 | 80.0 | 15.0 | 0.0 |
| SW64 | | | 0.0 | 95.0 | | | 0.0 | 0.3 | | 0.0 | 0.3 | 0.3 | 75.0 | 3.0 | 0.0 |
| SW65 | | 30 | 30.0 | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 | 40.0 | 0.0 | 0.3 | 0.0 |
| SW66 | | | 10.0 | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 | 70.0 | 0.0 | 0.0 | 0.0 |
| SW67 | | | 0.0 | 0.0 | 9 | | 5.0 | 70.0 | | 3.0 | 0.0 | 0.0 | 50.0 | 90.0 | 0.0 |
| SW68 | | | 0.0 | 0.0 | 6 | | 0.0 | 20.0 | | 0.0 | 75.0 | 5.0 | 0.0 | 40.0 | 0.0 |
| SW69 | | | 98.0 | 0.0 | 6 | | 0.0 | 0.3 | | 0.0 | 2.0 | 0.3 | 0.3 | 0.0 | 0.0 |
| SW70 | | | 99.0 | 0.0 | 6 | | 0.0 | 0.3 | | 0.0 | 0.3 | 0.3 | 0.7 | 0.0 | 0.0 |
| SW71 | | | 90.0 | 0.0 | 6 | | 0.0 | 0.0 | | 5.0 | 7.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SW72 | | | 0.0 | 50.0 | 0 | | 0.0 | 30.0 | | 0.0 | 0.7 | 2.0 | 10.0 | 60.0 | 0.0 |
| SW73 | | | 5.0 | 20.0 | 6 | | 0.0 | 70.0 | | 0.0 | 7.0 | 6.0 | 5.0 | 30.0 | 1.0 |

Table 4. Environmental variables for the R4D permanent vegetation plots

| Plot | Disturbance: | | | | | | | | |
|-------|--------------|-----|------|---------|----------|-----------------|-------|------|--------|
| | Human | Fox | Bear | Caribou | Squirrel | Lemming or Vole | Moose | Bird | Insect |
| SW28 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW29A | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW29B | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW30A | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 1.0 |
| SW30B | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 |
| SW32A | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 1.0 |
| SW32B | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW33 | 1.0 | 0 | 0 | 1.0 | 1.0 | 0 | 0 | 0 | 0 |
| SW34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 |
| SW35A | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 1.0 |
| SW35B | 0 | 0 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 |
| SW36A | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 1.0 |
| SW36B | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 1.0 |
| SW37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW38 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW39 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 |
| SW41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 0 |
| SW42 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW44A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW44B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW46 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 |
| SW48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 |
| SW50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW51 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW52 | 0 | 0 | 1.0 | 1.0 | 1.0 | 0 | 0 | 0 | 0 |

Table 4. Environmental variables for the R4D permanent vegetation plots

| Plot | Disturbance: | | | | | | | | |
|-------|--------------|-----|------|---------|----------|-----------------|-------|------|--------|
| | Human | Fox | Bear | Caribou | Squirrel | Lemming or Vole | Moose | Bird | Insect |
| SW53 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW54 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW55 | 0 | 0 | 0 | 0 | 0 | 2.0 | 0 | 0 | 0 |
| SW56 | 0 | 0 | 0 | 0 | 0 | 3.0 | 0 | 0 | 0 |
| SW57 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 1.0 | 0 |
| SW58A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW58B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW59 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW60 | 0 | 0 | 0 | 1.0 | 0 | 1.0 | 0 | 0 | 0 |
| SW61 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW63 | 0 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 |
| SW64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 0 |
| SW65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW67 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 |
| SW68 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW72 | 0 | 0 | 0 | 0 | 0 | 3.0 | 0 | 0 | 0 |
| SW73 | 0 | 0 | 0 | 0 | 0 | 3.0 | 0 | 0 | 0 |