

**Online Resource 1. The COI sequences used in haplotype analysis of *Bombus polaris***

| No. | Species               | Locality                   | GenBank  | BOLD         | Hap | bp  | Reference                |
|-----|-----------------------|----------------------------|----------|--------------|-----|-----|--------------------------|
| 1   | <i>Bombus polaris</i> | Canada/Nunavut/Kitikeot    | MN678200 | ACHAR212-18  | H1  | 654 | Pentinsaari et al., 2020 |
| 2   | <i>Bombus polaris</i> | Canada, Nunavut, Kitikmeot | MN678200 | ACHAR213-18  | H1  | 654 | Pentinsaari et al., 2020 |
| 3   | <i>Bombus polaris</i> | Canada, Nunavut, Kitikmeot | MN678200 | ACHAR217-18  | H1  | 655 | Pentinsaari et al., 2020 |
| 4   | <i>Bombus polaris</i> | Canada, Nunavut, Kitikmeot | MN678200 | ACHAR3483-19 | H1  | 654 | Pentinsaari et al., 2020 |
| 5   | <i>Bombus polaris</i> | Greenland                  |          | BBWP596-12   | H2  | 631 | Paul H. Williams         |
| 6   | <i>Bombus polaris</i> | Greenland                  |          | BBWP597-12   | H2  | 632 | Paul H. Williams         |
| 7   | <i>Bombus polaris</i> | Greenland                  |          | BBWP598-12   | H3  | 658 | Paul H. Williams         |
| 8   | <i>Bombus polaris</i> | Greenland                  |          | BBWP599-12   | H2  | 658 | Paul H. Williams         |
| 9   | <i>Bombus polaris</i> | Greenland                  |          | BBWP600-12   | H2  | 650 | Paul H. Williams         |
| 10  | <i>Bombus polaris</i> | Greenland                  |          | BBWP601-12   | H4  | 646 | Paul H. Williams         |
| 11  | <i>Bombus polaris</i> | Greenland                  |          | BBWP606-12   | H2  | 658 | Paul H. Williams         |
| 12  | <i>Bombus polaris</i> | Greenland                  |          | BBWP607-12   | H2  | 632 | Paul H. Williams         |
| 13  | <i>Bombus polaris</i> | Greenland                  |          | BBWP608-12   | H3  | 658 | Paul H. Williams         |
| 14  | <i>Bombus polaris</i> | Greenland                  |          | BBWP609-12   | H2  | 658 | Paul H. Williams         |
| 15  | <i>Bombus polaris</i> | Greenland                  |          | BBWP611-12   | H4  | 658 | Paul H. Williams         |
| 16  | <i>Bombus polaris</i> | Greenland                  |          | BBWP612-12   | H2  | 658 | Paul H. Williams         |
| 17  | <i>Bombus polaris</i> | Greenland                  |          | BBWP623-12   | H4  | 632 | Paul H. Williams         |
| 18  | <i>Bombus polaris</i> | United States              |          | BBWP625-12   | H1  | 632 | Paul H. Williams         |

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|----|-----------------------|-------------------------------|----------|--------------|-----|-----|-----------------------------|
| 19 | <i>Bombus polaris</i> | United States                 |          | BBWP626-12   | H1  | 651 | Paul H. Williams            |
| 20 | <i>Bombus polaris</i> | United States                 |          | BBWP639-12   | H1  | 658 | Paul H. Williams            |
| 21 | <i>Bombus polaris</i> | Canada, Nunavut               |          | BEECF598-11  | H5  | 658 | Paul H. Williams            |
| 22 | <i>Bombus polaris</i> | Canada, Nunavut               |          | BEECF857-12  | H1  | 658 | Paul H. Williams            |
| 23 | <i>Bombus polaris</i> | Canada, Nunavut               | HQ938008 | BWTWO1272-10 | H6  | 658 | Paul H. Williams            |
| 24 | <i>Bombus polaris</i> | Canada, Nunavut, Kitikmeot    |          | FCHAR4875-19 | H1  | 656 | -                           |
| 25 | <i>Bombus polaris</i> | Greenland, NE Greenland       |          | GRAFW3101-14 | H4  | 658 | Wirta et al., 2015          |
| 26 | <i>Bombus polaris</i> | Greenland, NE Greenland       |          | GRAFW3102-14 | H7  | 658 | Wirta et al., 2016          |
| 27 | <i>Bombus polaris</i> | Greenland, NE Greenland       |          | GRAFW3103-14 | H2  | 658 | Wirta et al., 2017          |
| 28 | <i>Bombus polaris</i> | Canada, Northwest Territories |          | INRMA4685-21 | H12 | 655 | Claudia Copley, unpublished |
| 29 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | INRMA4687-21 | H1  | 658 | Claudia Copley, unpublished |
| 30 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | INRMA4688-21 | H1  | 657 | Claudia Copley, unpublished |
| 31 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG087-15  | H1  | 658 | Paul H. Williams            |
| 32 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG088-15  | H1  | 658 | Paul H. Williams            |
| 33 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG089-15  | H1  | 658 | Paul H. Williams            |
| 34 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG090-15  | H1  | 658 | Paul H. Williams            |
| 35 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG092-15  | H1  | 658 | Paul H. Williams            |
| 36 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG093-15  | H1  | 658 | Paul H. Williams            |
| 37 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG094-15  | H1  | 658 | Paul H. Williams            |
| 38 | <i>Bombus polaris</i> | Canada, Yukon Territory       |          | MAGIG095-15  | H1  | 658 | Paul H. Williams            |

|    |                       |                         |          |             |     |     |                       |
|----|-----------------------|-------------------------|----------|-------------|-----|-----|-----------------------|
| 39 | <i>Bombus polaris</i> | Canada, Manitoba        | JX831653 | MHBEE039-07 | H1  | 658 | Stahlhut et al., 2013 |
| 40 | <i>Bombus polaris</i> | Canada, Manitoba        | JX831851 | MHBEE049-07 | H8  | 658 | Stahlhut et al., 2013 |
| 41 | <i>Bombus polaris</i> | Canada, Manitoba        | JX833332 | MHBEE050-07 | H1  | 658 | Stahlhut et al., 2013 |
| 42 | <i>Bombus polaris</i> | Canada, Manitoba        | JX830137 | MHBEE056-07 | H10 | 658 | Stahlhut et al., 2013 |
| 43 | <i>Bombus polaris</i> | Canada, Manitoba        | JX830545 | MHBEE058-07 | H1  | 658 | Stahlhut et al., 2013 |
| 44 | <i>Bombus polaris</i> | Canada, Manitoba        | JX832483 | MHBEE073-07 | H9  | 658 | Stahlhut et al., 2013 |
| 45 | <i>Bombus polaris</i> | Canada, Manitoba        | JX829309 | MHBEE077-07 | H11 | 658 | Stahlhut et al., 2013 |
| 46 | <i>Bombus polaris</i> | Canada, Manitoba        | JX828963 | MHBEE080-07 | H1  | 658 | Stahlhut et al., 2013 |
| 47 | <i>Bombus polaris</i> | Canada, Manitoba        | JX831467 | MHBEE091-07 | H1  | 644 | Stahlhut et al., 2013 |
| 48 | <i>Bombus polaris</i> | United States, Alaska   |          | WASPS710-16 | H1  | 658 | Paul H. Williams      |
| 49 | <i>Bombus polaris</i> | United States, Alaska   |          | WASPS846-16 | H13 | 658 | Paul H. Williams      |
| 50 | <i>Bombus polaris</i> | United States, Alaska   |          | WASPS848-16 | H14 | 658 | Paul H. Williams      |
| 51 | <i>Bombus polaris</i> | United States, Alaska   |          | WASPS850-16 | H13 | 658 | Paul H. Williams      |
| 52 | <i>Bombus polaris</i> | United States, Alaska   |          | WASPS851-16 | H13 | 658 | Paul H. Williams      |
| 53 | <i>Bombus polaris</i> | Canada, Yukon Territory |          | WASPS856-16 | H1  | 658 | Paul H. Williams      |
| 54 | <i>Bombus polaris</i> | Canada, Nunavut         | MN678200 |             | H1  | 654 | A. Borisenko          |
| 55 | <i>Bombus polaris</i> | Greenland, NE Greenland | MZ572196 |             | H5  | 658 | Present study         |