

Table S1. Philaenus and other arthropod sequences used in the alignment procedure for the development of species-specific primers for *P. sumarius*. Sequences are identified by their GenBank accession numbers (AN) and/or their BOLD barcode index number (BIN).

| Species | Order | BIN | AN |
|-------------------------------|-----------|---------------|------------|
| <i>Philaenus spumarius</i> | Hemiptera | ASHMT132-11 | |
| <i>Philaenus spumarius</i> | Hemiptera | ASHMT298-11 | |
| <i>Philaenus spumarius</i> | Hemiptera | BBHCN1107-10 | |
| <i>Philaenus spumarius</i> | Hemiptera | BBHCN607-10 | |
| <i>Philaenus spumarius</i> | Hemiptera | BBPEC044-09 | |
| <i>Philaenus spumarius</i> | Hemiptera | BBPEC099-09 | |
| <i>Philaenus spumarius</i> | Hemiptera | SSGBB339-14 | |
| <i>Philaenus spumarius</i> | Hemiptera | SSGBB470-14 | |
| <i>Philaenus spumarius</i> | Hemiptera | SSGBB484-14 | |
| <i>Philaenus spumarius</i> | Hemiptera | SSGLA2393-15 | |
| <i>Philaenus spumarius</i> | Hemiptera | UAMIC1988-14 | |
| <i>Philaenus</i> | Hemiptera | UGEAA051-16 | |
| <i>Philaenus spumarius</i> | Hemiptera | BBPEC184-09 | |
| <i>Philaenus spumarius</i> | Hemiptera | CNSIC1485-15 | |
| <i>Philaenus spumarius</i> | Hemiptera | CNSIC3030-15 | |
| <i>Philaenus spumarius</i> | Hemiptera | RBINA2548-13 | |
| <i>Philaenus spumarius</i> | Hemiptera | CNSIE1553-15 | |
| <i>Philaenus spumarius</i> | Hemiptera | CRHIE085-15 | |
| <i>Philaenus</i> | Hemiptera | GBMHH040-10 | |
| <i>Philaenus maghresignus</i> | Hemiptera | GBMIN10321-12 | GU446993 |
| <i>Philaenus tessellatus</i> | Hemiptera | GBMIN10399-12 | GU446992 |
| <i>Aphrophora canadensis</i> | Hemiptera | | KF919732.1 |
| <i>Aphrophora canadensis</i> | Hemiptera | CNCHB1790-11 | |
| <i>Aphrophora fulva</i> | Hemiptera | CNCHB1791-11 | |
| <i>Aphrophora gelida</i> | Hemiptera | CNCHB1796-11 | |
| <i>Aphrophora gelida</i> | Hemiptera | CNCHB1797-11 | |
| <i>Aphrophora irrorata</i> | Hemiptera | CNCHB1800-11 | |
| <i>Aphrophora permutata</i> | Hemiptera | CNCHB1801-11 | |
| <i>Aphrophora maculosa</i> | Hemiptera | CNCHB1802-11 | |
| <i>Aphrophora</i> | Hemiptera | CNCHB1803-11 | |
| <i>Aphrophora parallella</i> | Hemiptera | CNCHB1804-11 | |
| <i>Aphrophora parallella</i> | Hemiptera | CNCHB1805-11 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | | MF838580.1 |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA1181-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA197-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA221-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA223-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA264-15 | |

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| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA272-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA276-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA578-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIA618-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIB113-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1335-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1353-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1359-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1461-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1494-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1495-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1511-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1605-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1637-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1640-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1643-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1655-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1687-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1709-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1749-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1760-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1794-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1797-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1823-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1931-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1933-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC1935-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC2042-15 | |
| <i>Neophilaenus lineatus</i> | Hemiptera | SSGIC2046-15 | |
| <i>Paraphilaenus parallelus</i> | Hemiptera | CNCHB1925-11 | |
| <i>Paraphilaenus parallelus</i> | Hemiptera | CNCHB1926-11 | |
| <i>Paraphilaenus parallelus</i> | Hemiptera | CNCHB1927-11 | |
| <i>Synema globosum</i> | Araneae | | KX537166.1 |
| <i>Synema globosum</i> | Araneae | FBARB322-11 | |
| <i>Synema globosum</i> | Araneae | GBBSP001-15 | |
| <i>Synema globosum</i> | Araneae | GBBSP740-15 | |
| <i>Synema globosum</i> | Araneae | GBCH11025-13 | |
| <i>Synema globosum</i> | Araneae | SPIEU1197-11 | |
| <i>Synema globosum</i> | Araneae | SPSLO177-12 | |
| <i>Synema globosum</i> | Araneae | SPSLO438-13 | |
| <i>Synema</i> | Araneae | UGEAA028-16 | |
| <i>Araniella</i> | Araneae | ARNM051-15 | |
| <i>Araniella</i> | Araneae | ARNM052-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM053-15 | |

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| <i>Araniella cucurbitina</i> | Araneae | ARNM054-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM055-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM056-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM057-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM058-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM059-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM060-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM061-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM062-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM063-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM064-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM065-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM066-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM067-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM068-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM069-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM070-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM071-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM072-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM073-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM074-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM075-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM076-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM077-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM078-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM079-15 | |
| <i>Araniella cucurbitina</i> | Araneae | ARNM080-15 | |
| <i>Carabus taedatus</i> | Coleoptera | DSCOL279-07 | |
| <i>Carabus taedatus</i> | Coleoptera | DSCOL302-07 | |
| <i>Carabus taedatus</i> | Coleoptera | DSCOL611-07 | |
| <i>Carabus yamato</i> | Coleoptera | GBCL0129-06 | |
| <i>Carabus lusitanicus</i> | Coleoptera | GBCL15380-13 | |
| <i>Carabus dufouri</i> | Coleoptera | GBCL15464-13 | |
| <i>Carabus lusitanicus</i> | Coleoptera | GBCL15511-13 | |
| <i>Carabus lusitanicus</i> | Coleoptera | GBCL15558-13 | |
| <i>Carabus taedatus</i> | Coleoptera | DSCOL200-07 | |
| <i>Carabus lusitanicus</i> | Coleoptera | GBCL15566-13 | |
| <i>Carabus jankowskii</i> | Coleoptera | GBCL2012-06 | AY840878 |
| <i>Carabus jankowskii</i> | Coleoptera | GBCL2014-06 | AY840880 |
| <i>Carabus seishinensi</i> | Coleoptera | GBCL2446-06 | DQ184566 |
| <i>Carabus blaptoides</i> | Coleoptera | GBCL7254-12 | AB565415 |
| <i>Carabus chamissonis</i> | Coleoptera | TWCOL266-09 | |
| <i>Carabus blaptoides</i> | Coleoptera | GBCL7279-12 | AB565360 |
| <i>Carabus blaptoides</i> | Coleoptera | GBCL7307-12 | AB565283 |

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| <i>Carabus blaptoides</i> | Coleoptera | GBCL7342-12 | AB565320 |
| <i>Carabus blaptoides</i> | Coleoptera | GBCL7398-12 | AB565303 |
| <i>Brachinus gebhardis</i> | Coleoptera | NEONU1829-13 | |
| <i>Brachinus gebhardis</i> | Coleoptera | NEONU1830-13 | |
| <i>Brachinus favicollis</i> | Coleoptera | NEONU1833-13 | |
| <i>Brachinus favicollis</i> | Coleoptera | NEONU1834-13 | |
| <i>Brachinus costipennis</i> | Coleoptera | NEONU1835-13 | |
| <i>Brachinus costipennis</i> | Coleoptera | NEONU1836-13 | |
| <i>Brachinus costipennis</i> | Coleoptera | NEONU1837-13 | |
| <i>Brachinus costipennis</i> | Coleoptera | NEONU1838-13 | |
| <i>Bactrocera oleae</i> | Diptera | GBDP12764-12 | JX073648.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17469-15 | KP704404.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17468-15 | KP704403.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17467-15 | KP704402.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17466-15 | KP704401.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17465-15 | KP704400.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17464-15 | KP704399.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17463-15 | KP704398.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17462-15 | KP704397.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17461-15 | KP704396.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17460-15 | KP704395.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17459-15 | KP704394.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17458-15 | KP704393.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17457-15 | KP704392.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17456-15 | KP704391.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17455-15 | KP704390.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17454-15 | KP704389.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17453-15 | KP704388.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17452-15 | KP704387.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17451-15 | KP704386.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17450-15 | KP704385.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17449-15 | KP704384.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17448-15 | KP704383.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17447-15 | KP704382.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17446-15 | KP704381.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17445-15 | KP704380.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17444-15 | KP704379.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17443-15 | KP704378.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17442-15 | KP704377.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17441-15 | KP704376.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17440-15 | KP704375.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17439-15 | KP704374.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17438-15 | KP704373.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17437-15 | KP704372.1 |

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| <i>Bactrocera oleae</i> | Diptera | GBDP17436-15 | KP704371.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17435-15 | KP704370.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17434-15 | KP704369.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17433-15 | KP704368.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17432-15 | KP704367.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17431-15 | KP704366.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17430-15 | KP704365.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17429-15 | KP704364.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17428-15 | KP704363.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17427-15 | KP704362.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17426-15 | KP704361.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17425-15 | KP704360.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17424-15 | KP704359.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17423-15 | KP704358.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17422-15 | KP704357.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17421-15 | KP704356.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17420-15 | KP704355.1 |
| <i>Bactrocera oleae</i> | Diptera | GBDP17419-15 | KP704354.1 |
| <i>Harpalus rufipes</i> | Coleoptera | | KU918818.1 |
| <i>Harpalus laevipes</i> | Coleoptera | COLFD002-12 | |
| <i>Harpalus tardus</i> | Coleoptera | COLFE007-12 | |
| <i>Harpalus rufipes</i> | Coleoptera | COLFE377-12 | |
| <i>Harpalus tardus</i> | Coleoptera | COLFE742-13 | |
| <i>Harpalus laevipes</i> | Coleoptera | COLFE901-13 | |
| <i>Harpalus rubripes</i> | Coleoptera | COLFF011-13 | |
| <i>Ophonus rufibarbis</i> | Coleoptera | COLFB128-12 | |
| <i>Ophonus rufibarbis</i> | Coleoptera | COLFE109-12 | |
| <i>Ophonus rufibarbis</i> | Coleoptera | COLFE156-12 | |
| <i>Ophonus rufibarbis</i> | Coleoptera | COLFF156-13 | |
| <i>Ophonus rufibarbis</i> | Coleoptera | COLFF299-13 | |
| <i>Amara hyperborea</i> | Coleoptera | DSCOL495-07 | |
| <i>Amara quenseli</i> | Coleoptera | DSCOL497-07 | |
| <i>Amara alpina</i> | Coleoptera | DSCOL681-07 | |
| <i>Amara alpina</i> | Coleoptera | DSCOL710-09 | |
| <i>Amara quenseli</i> | Coleoptera | DSCOL715-09 | |
| <i>Amara quenseli</i> | Coleoptera | GBMIN41104-14 | |