**Supplementary Table 1: Catalog numbers of Quinqueserialis spp. museum specimens.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Catalog Number | Species Identification | Host Identification | Location | Collector |
| USNM 1319422 | *Notocotylus hassalli\** | *Arvicola riparius* | US | Hassall, A. |
| USNM 1343043 | *Notocotylus quinqueserialis* | Guinea Pig | Beltsville, Maryland | Krull, W.H. |
| USNM 1350530 | *Notocotylus quinqueserialis* | *Ondatra zibethicus* | Baker Lake, Washington | Metcalf, H.E. |
| USNM 1355028 | *Notocotylus quinqueserialis* | *Ondatra zibethicus* | Blackwater | Dozier |
| USNM 1390832 | *Notocotylus quinqueserialis* | *Ondatra zibethicus* | Oneida Lake, New York | Mueller, J.F. |
| USNM 1350529 | *Notocotylus quinqueserialis* | *Ondatra zibethicus* | US | La Rue, G.R. |
| USNM 1346536 | *Quinqueserialis floridensis* | *Neofiber alleni* | Putnam County, Florida | Quay, W.B. |
| USNM 1327181 | *Quinqueserialis hassalli\** | *Microtus pennsylvanicus* | East Falls Church, Virginia | Chapin, E.A. |
| USNM 1341119 | *Quinqueserialis hassalli\** | *Microtus pennsylvanicus* | Cass Lake, Minnesota | Dikmans, G. |
| USNM 1319419‡ | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Baltimore, Maryland | Hassall, A. |
| USNM 1330294 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Eastern Shore, Maryland | Price, E.W. |
| USNM 1338717 | *Quinqueserialis quinqueserialis*  | *Ondatra zibethicus* | Dixbono, Michigan | Ameel, D.J.  |
| USNM 1341145 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Miles City, Montana | Wehr, E.E. |
| USNM 1353411 | *Quinqueserialis quinqueserialis*† | *Charitonetta albeola* | Mendenhall Flats, Alaska | Williams, R.B. |
| USNM 1370253‡ | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Williamson County, Illinois | Jilek, R. |
| USNM 1385033 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Wyoming | McIntosh, A. |
| USNM 1353615 | *Quinqueserialis* sp.\* | *Zapus hudsonius* | Tompkins County, New York | Whitaker, J. |
| USNM 1395179 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Michigan | Wu, K. |
| USNM 1365347 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Bog Lake, Michigan | Unknown |

Catalog number and accompanying data of 19 museum lots identified as *Quinqueserialis* spp. loaned from the Invertebrate Zoology Collection at the Smithsonian National Museum of Natural History, Washington D.C., USA.

\* Species name needs to be changed to *Q. quinqueserialis*.

‡ Accurate measurements could not be obtained from this specimen and so it was not included in the analyses.

† Specimen only had three rows of ventral papillae and is likely a misidentified *Notocotylus* sp. parasite. For this reason, it was not included in the analyses.

**Supplementary Table 2: Catalog numbers of vouchered *Quinqueserialis* spp. Specimens**

Catalog numbers and accompanying data of field-collected specimens deposited as voucher specimens. Vouchers deposited at the Smithsonian National Museum of Natural History, Washington D.C., USA.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Catalog Number | Species identification | Host  | Location | GPS | Type Status |
| USNM 1643535 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Leland Channel, NT | 68.623, -135.369 | Paragenophore/voucher |
| USNM 1643471 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Paragenophore/voucher |
| USNM 1643536 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Leland Channel, NT | 68.623, -135.369 | Paragenophore/voucher |
| USNM 1643472 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Paragenophore/voucher |
| USNM 1643473 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Marais River, MB, Canada | 49.129, -97.301 | Paragenophore/voucher |
| USNM 1643474 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Coulter, MB, Canada | 49.074, -100.988 | Paragenophore/voucher |
| USNM 1643475 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Paragenophore/voucher |
| USNM 1643476 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Paragenophore/voucher |
| USNM 1643477 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.85 | Paragenophore/voucher |
| USNM 1643478 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Quantico Creek, VA, USA | 38.5903, -77.3567 | Paragenophore/voucher |
| USNM 1643479 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Blacksburg, VA, USA | 37.257, -80.442 | Paragenophore/voucher |
| USNM 1643480 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Blacksburg, VA, USA | 37.257, -80.443 | Paragenophore/voucher |
| USNM 1643481 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Blacksburg, VA, USA | 37.257, -80.444 | Paragenophore/voucher |
| USNM 1643482 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.735, -93.818 | Paragenophore/voucher |
| USNM 1643483 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Leland Channel, NT | 68.2948, -133.612 | Paragenophore/voucher |
| USNM 1643484 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Coulter, MB, Canada | 49.074, -100.988 | Hologenophore/voucher |
| USNM 1643485 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Shoal Lake, MB | 50.444, -97.682 | Hologenophore/voucher |
| USNM 1643486 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Marais River, MB, Canada | 49.129, -97.301 | Hologenophore/voucher |
| USNM 1643487 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Oak Hammock Marsh, MB | 50.206, -97.129 | Hologenophore/voucher |
| USNM 1643488 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Marais River, MB, Canada | 49.129, -97.301 | Hologenophore/voucher |
| USNM 1643489 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Hologenophore/voucher |
| USNM 1643490 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Hologenophore/voucher |
| USNM 1643491 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Hologenophore/voucher |
| USNM 1643492 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Hologenophore/voucher |
| USNM 1643493 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Hologenophore/voucher |
| USNM 1643494 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Hologenophore/voucher |
| USNM 1643495 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Minnesota Lake, MN, USA | 43.839, -93.84 | Hologenophore/voucher |
| USNM 1643496 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Shenandoah, VA, USA | 38.383, -78.836 | Hologenophore/voucher |
| USNM 1643497 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Blacksburg, VA, USA | 37.257, -80.442 | Hologenophore/voucher |
| USNM 1643498 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Quantico Creek, VA, USA | 38.5903, -77.3567 | Hologenophore/voucher |
| USNM 1643499 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Quantico Creek, VA, USA | 38.5903, -77.3567 | Hologenophore/voucher |
| USNM 1643500 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Blacksburg, VA, USA | 37.257, -80.442 | Hologenophore/voucher |
| USNM 1643501 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Blacksburg, VA, USA | 37.257, -80.442 | Hologenophore/voucher |
| USNM 1643502 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Blacksburg, VA, USA | 37.257, -80.442 | Hologenophore/voucher |
| USNM 1643503 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.304  | Hologenophore/voucher |
| USNM 1643504 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.305 | Hologenophore/voucher |
| USNM 1643505 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.306 | Hologenophore/voucher |
| USNM 1643506 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.307 | Hologenophore/voucher |
| USNM 1643507 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.308 | Hologenophore/voucher |
| USNM 1643508 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.309 | Hologenophore/voucher |
| USNM 1643509 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.310 | Hologenophore/voucher |
| USNM 1643510 | *Quinqueserialis quinqueserialis* | *Ondatra zibethicus* | Lake Guntersville, AL, USA | 34.47, -86.311 | Hologenophore/voucher |
| USNM 1643511 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Marais River, MB, Canada | 49.129, -97.301 | Hologenophore/voucher |
| USNM 1643512 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Marais River, MB, Canada | 49.129, -97.302 | Hologenophore/voucher |
| USNM 1643513 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643514 | *Quinqueserialis quinqueserialis* | *Microtus oeconomus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643515 | *Quinqueserialis quinqueserialis* | *Microtus oeconomus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643516 | *Quinqueserialis quinqueserialis* | *Microtus oeconomus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643517 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643518 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643519 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643520 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643521 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Onion Lake Creek, NT, Canada | 68.288, -133.6237 | Hologenophore/voucher |
| USNM 1643537 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Leland Channel, NT, Canada | 68.623, -135.369 | Hologenophore/voucher |
| USNM 1643538 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Leland Channel, NT, Canada | 68.623, -135.369 | Hologenophore/voucher |
| USNM 1643539 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Leland Channel, NT, Canada | 68.623, -135.369 | Hologenophore/voucher |
| USNM 1643540 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Leland Channel, NT, Canada | 68.623, -135.369 | Hologenophore/voucher |
| USNM 1643522 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818  | Hologenophore/voucher |
| USNM 1643523 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818  | Hologenophore/voucher |
| USNM 1643524 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818  | Hologenophore/voucher |
| USNM 1643525 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.735, -93.818 | Hologenophore/voucher |
| USNM 1643526 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.735, -93.818 | Hologenophore/voucher |
| USNM 1643527 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.759, -93.94 | Hologenophore/voucher |
| USNM 1643528 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.759, -93.94 | Hologenophore/voucher |
| USNM 1643529 | *Quinqueserialis quinqueserialis* | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.759, -93.94 | Hologenophore/voucher |
| USNM 1643530 | *Quinqueserialis kinsellai* n. sp. | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818 | Paratype/paragenophore |
| USNM 1643531 | *Quinqueserialis kinsellai* n. sp. | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818 | Paratype/hologenophore |
| USNM 1643532 | *Quinqueserialis kinsellai* n. sp. | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818 | Paratype/hologenophore |
| USNM 1643533 | *Quinqueserialis kinsellai* n. sp. | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818 | Paratype/hologenophore |
| USNM 1643534 | *Quinqueserialis kinsellai* n. sp. | *Microtus pennsylvanicus* | Churchill, MB, Canada | 58.739, -93.818 | Holotype/hologenophore |

**Supplementary Table 3:** **Catalog numbers of vouchered vole specimens.**

Catalog numbers and accompanying data of vole specimens collected in Inuvik, NT and Churchill and Marais River, MB, Canada in 2016-2018 vouchered in the Canadian Museum of Nature (CMN), Ottawa, ON, Canada and the Texas A & M Biodiversity Research and Teaching Collections (TBRTC), College Station, TX, USA.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Catalog Number | Collection | Species Identification |  Location | GPS | Year Collected |
| TCWC 66625 | TBRTC | *Microtus pennsylvanicus* | Churchill, MB | 58.735, -93.818 | 2016 |
| TCWC 66632 | TBRTC | *Microtus pennsylvanicus* | Churchill, MB | 58.735, -93.818 | 2016 |
| TCWC 66642 | TBRTC | *Microtus pennsylvanicus* | Churchill, MB | 58.735, -93.818 | 2016 |
| TCWC 66647 | TBRTC | *Microtus pennsylvanicus* | Churchill, MB | 58.735, -93.818 | 2016 |
| CMNMA 62706 | CMN | *Microtus pennsylvanicus* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62707 | CMN | *Microtus pennsylvanicus* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62708 | CMN | *Microtus pennsylvanicus* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62709 | CMN | *Microtus pennsylvanicus* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62710 | CMN | *Microtus pennsylvanicus* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62711 | CMN | *Microtus pennsylvanicus* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62712 | CMN | *Microtus pennsylvanicus* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62713 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62714 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62715 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62716 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62717 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62718 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62719 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62720 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62721 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62722 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62723 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62724 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62725 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62726 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62727 | CMN | *Myodes gapperi* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62728 | CMN | *Zapus hudsonius* | Montcalm, MB | 49.129, -97.301 | 2018 |
| CMNMA 62729 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62730 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62731 | CMN | *Microtus pennsylvanicus* | Leland Channel, NT | 68.623, -135.369 | 2018 |
| CMNMA 62732 | CMN | *Microtus pennsylvanicus* | Leland Channel, NT | 68.623, -135.369 | 2018 |
| CMNMA 62733 | CMN | *Microtus pennsylvanicus* | Leland Channel, NT | 68.623, -135.369 | 2018 |
| CMNMA 62734 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62735 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62736 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62737 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62738 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62739 | CMN | *Microtus pennsylvanicus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |
| CMNMA 62740 | CMN | *Microtus oeconomus* | Onion Lake, NT | 68.288, -133.6237 | 2018 |

**Supplementary Table 4: Catalog numbers of vouchered snail specimens**

Catalog number and accompanying data of nine snail specimens collected in Churchill, MB, Canada in 2019 vouchered in the Manitoba Museum, Winnipeg, Canada. Snail species identified following Clarke, 1981.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Catalog Number | Species Identification | GPS Location | Date Collected | Collectors |
| MM 67031 | *Promenetus exacuous* | 58.672332, -94.160065 | 8/18/2019 | D.K. Gagnon, J.T. Detwiler |
| MM 67032 | *Gyraulus circumstriatus* | 58.672332, -94.160065 | 8/13/2019 | D.K. Gagnon, J.T. Detwiler |
| MM 67033 | *Gyraulus parvus* | 58.672332, -94.160065 | 8/13/2018 | D.K. Gagnon, J.T. Detwiler |
| MM 67034 | *Stagnicola* sp. | 58.672332, -94.160065 | 8/18/2019 | D.K. Gagnon, J.T. Detwiler |
| MM 67035 | *Physella gyrina* | 58.672332, -94.160065 | 8/13/2019 | D.K. Gagnon, J.T. Detwiler |
| MM 67036 | *Gyraulus circumstriatus* | 58.739218, -93.817874 | 8/12/2019 | D.K. Gagnon, J.T. Detwiler |
| MM 67037 | *Physella gyrina* | 58.739218, -93.817874 | 8/11/2019 | D.K. Gagnon, J.T. Detwiler |
| MM 67038 | *Gyraulus parvus* | 58.758606, -93.940148 | 8/14/2019 | D.K. Gagnon, J.T. Detwiler |
| MM 67039 | *Gyraulus circumstriatus* | 58.758606, -93.940148 | 8/10/2019 | D.K. Gagnon, J.T. Detwiler |