TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 02RAY221A1 | 02RAY212A1 | 01-M-70 | 01-M-71 | 02RAYR034A1 |
|---|---|---|---|---|---|
| Location | Stewart River | Stewart River | Fiftymile B. | Fiftymile B. | Mt. Burnham |
| Age (Timescale) | Devonian | Devonian | Dev.-Miss. | Dev.-Miss. | Devonian |
| Age (Ma) | 362 | 362 | 362 | 362 | 345 |
| Easting (UTM) | 588045 | 594546 | 509548 | 504431 | 633420 |
| Northing (UTM) | 7018976 | 7016020 | 7086915 | 7074252 | 7068290 |
| $SiO_2$ | 76.07 | 68.45 | 71.35 | 74.50 | 69.14 |
| $TiO_2$ | 0.10 | 0.12 | 0.37 | 0.22 | 0.26 |
| $Al_2O_3$ | 12.81 | 18.32 | 15.82 | 13.81 | 14.07 |
| $Fe_2O_3T$ | 1.36 | 1.17 | 1.86 | 1.95 | 2.49 |
| MnO | 0.03 | 0.03 | 0.02 | 0.03 | 0.04 |
| MgO | 0.02 | 0.28 | 0.46 | 0.28 | 0.38 |
| CaO | 0.60 | 1.51 | 1.47 | 0.82 | 1.00 |
| $K_2O$ | 5.65 | 2.25 | 2.49 | 4.86 | 4.70 |
| $Na_2O$ | 2.12 | 5.35 | 4.32 | 1.85 | 1.77 |
| $P_2O_5$ | 0.02 | 0.05 | 0.18 | 0.13 | 0.17 |
| LOI | 0.41 | 0.87 | 0.60 | 0.50 | 4.89 |
| Total | 99.19 | 98.40 | 98.94 | 98.95 | 98.91 |
| Ni (ppm) | 3 | | 12 | 16 | 8 |
| Cr | 1 | - | 13 | 5 | 3 |
| Co | 2.0 | 1.0 | 4.0 | 3.0 | 3.0 |
| V | 10 | 33 | 32 | 18 | 20 |
| S | 62 | 111 | - | - | 84 |
| Sc | - | 1.0 | 5.3 | 3.7 | 3.4 |
| Cu | 1 | - | 28 | 36 | - |
| Pb | 16 | - | 11 | 27 | - |
| Zn | 13 | 29 | 21 | 42 | 33 |
| As | 6.5 | - | - | - | - |
| Mo | - | - | - | - | - |
| W | - | 9 | - | - | - |
| Cd | 4 | - | - | - | 3 |
| Nb | 3.4† | 6.0 | 16.8 | 15.4 | 14.5 |
| Ta | - | 0.26 | 1.39 | 1.34 | 1.23 |
| Zr | 107.3 | 71.4† | 82.8 | 81.1 | 150.1† |
| Hf | 3.60 | 1.41 | 2.30 | 2.60 | 2.44 |
| Y | 15.8† | 1.9 | 40.6 | 34.8 | 27.9 |
| Ga | 13.6 | 18.9 | 20.1 | 21.3 | 17.3 |
| Cs | 0.64 | 1.10 | 1.67 | 18.07 | 3.28 |
| Sr | 144 | 1537 | 138 | 55 | 97 |
| Rb | 125.2 | 54.5 | 77.1 | 291.4 | 163.6 |
| Ba | 559 | 2715 | 865 | 409 | 757 |
| Be | - | 1.29 | - | - | 1.23 |
| Li | 7 | 13 | - | - | 48 |
| Th | 11.13 | 0.24 | 25.41 | 19.26 | 19.92 |
| U | 1.64 | 0.37 | 3.19 | 5.98 | 1.97 |
| La | 32.27 | 1.23 | 59.99 | 26.73 | 15.75 |
| Ce | 50.08 | 1.90 | 120.05 | 71.78 | 68.38 |
| Pr | 4.47 | 0.38 | 14.57 | 6.43 | 4.18 |
| Nd | 13.27 | 1.32 | 52.68 | 22.58 | 14.82 |
| Sm | 1.66 | 0.35 | 10.18 | 4.77 | 3.48 |
| Eu | 0.51 | 0.41 | 1.60 | 0.54 | 0.94 |
| Gd | 1.26 | 0.31 | 8.42 | 4.62 | 3.48 |
| Tb | 0.14 | 0.06 | 1.30 | 0.82 | 0.65 |
| Dy | 0.95 | 0.35 | 7.56 | 5.66 | 4.30 |
| Ho | 0.19 | 0.08 | 1.42 | 1.13 | 1.08 |
| Er | 0.64 | 0.22 | 4.02 | 3.46 | 3.59 |
| Tm | 0.10 | 0.03 | 0.52 | 0.50 | 0.59 |
| Yb | 0.72 | 0.26 | 3.41 | 2.99 | 3.86 |
| Lu | 0.12 | 0.03 | 0.47 | 0.39 | 0.57 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 02RAYR040A1 | 03RAYP023A1 | 03RAYP004B1 | 01RAY039A2 | 01RAY042A1 |
|---|---|---|---|---|---|
| Location | Mt. Burnham | Mt. Burnham | Mt. Burnham | Western Belt | Western Belt |
| Age (Timescale) | Devonian | Devonian | Devonian | Permian | Permian |
| Age (Ma) | 345 | 345 | 345 | 260 | 260 |
| Easting (UTM) | 634260 | 635483 | 640294 | 564384 | 564711 |
| Northing (UTM) | 7065546 | 7066588 | 7063318 | 6998996 | 7001009 |
| $SiO_2$ | 70.98 | 72.46 | 83.87 | 75.01 | 75.20 |
| $TiO_2$ | 0.28 | 0.36 | 0.17 | 0.13 | 0.10 |
| $Al_2O_3$ | 14.92 | 14.26 | 8.27 | 13.76 | 13.68 |
| $Fe_2O_3T$ | 2.46 | 2.94 | 2.21 | 1.77 | 1.55 |
| MnO | 0.04 | 0.05 | 0.03 | 0.04 | 0.04 |
| MgO | 0.34 | 0.91 | 0.70 | 0.26 | 0.05 |
| CaO | 1.07 | 1.41 | 0.60 | 1.67 | 1.47 |
| $K_2O$ | 5.60 | 4.37 | 0.69 | 3.83 | 3.90 |
| $Na_2O$ | 1.93 | 2.84 | 2.71 | 2.46 | 3.09 |
| $P_2O_5$ | 0.18 | 0.10 | 0.06 | 0.02 | 0.03 |
| LOI | 0.60 | 0.49 | 0.18 | 0.55 | 0.37 |
| Total | 98.40 | 100.19 | 99.49 | 99.49 | 99.48 |
| Ni (ppm) | 13 | 42 | 7 | 6 | 2 |
| Cr | 2 | 3 | 11 | 5 | 1 |
| Co | 3.0 | 3.0 | 3.0 | - | 1.0 |
| V | 20 | 6 | 23 | 19 | 17 |
| S | 86 | 96 | 103 | - | - |
| Sc | 2.9 | 2.7 | 2.5 | 5.0 | 4.0 |
| Cu | - | - | - | 3 | - |
| Pb | - | 23 | 6 | 16 | 20 |
| Zn | 32 | 25 | 8 | 35 | 34 |
| As | - | 3.6 | 4.4 | 2.2 | 1.9 |
| Mo | - | - | - | - | - |
| W | - | - | - | - | - |
| Cd | 7 | - | - | 3 | - |
| Nb | 15.7 | 12.7 | 4.0 | 7.7 | 8.0 |
| Ta | 1.27 | 1.39 | 0.46 | 0.71 | 0.71 |
| Zr | 147.6† | 72.3 | 119.9 | 109.0 | 104.0 |
| Hf | 2.44 | 2.50 | 3.40 | 3.72 | 3.62 |
| Y | 37.8 | 29.4 | 10.3 | 40.6 | 31.4 |
| Ga | 18.6 | 21.4 | 12.3 | 14.4 | 14.0 |
| Cs | 8.14 | 9.64 | 1.17 | 2.78 | 1.78 |
| Sr | 88 | 55 | 95 | 131 | 198 |
| Rb | 243.8 | 383.3 | 30.9 | 133.4 | 119.4 |
| Ba | 658 | 186 | 399 | 2171 | 1935 |
| Be | 1.75 | 0.93 | 0.61 | - | - |
| Li | 113 | 73 | 38 | 7 | 6 |
| Th | 25.32 | 15.00 | 8.63 | 11.60 | 13.37 |
| U | 2.35 | 2.58 | 1.93 | 3.74 | 2.78 |
| La | 41.68 | 16.73 | 18.24 | 15.55 | 6.07 |
| Ce | 82.81 | 38.71 | 35.52 | 38.80 | 26.78 |
| Pr | 10.40 | 4.39 | 3.92 | 3.68 | 1.64 |
| Nd | 35.66 | 15.38 | 14.06 | 13.44 | 6.00 |
| Sm | 7.44 | 3.86 | 2.58 | 2.98 | 1.72 |
| Eu | 1.11 | 0.30 | 0.62 | 0.53 | 0.56 |
| Gd | 6.81 | 3.95 | 2.11 | 3.82 | 2.46 |
| Tb | 1.16 | 0.82 | 0.31 | 0.82 | 0.59 |
| Dy | 6.80 | 5.27 | 1.80 | 6.06 | 4.56 |
| Ho | 1.40 | 1.02 | 0.36 | 1.40 | 1.12 |
| Er | 3.80 | 2.85 | 1.08 | 4.26 | 3.55 |
| Tm | 0.57 | 0.41 | 0.16 | 0.66 | 0.57 |
| Yb | 3.32 | 2.34 | 1.10 | 4.53 | 3.77 |
| Lu | 0.46 | 0.30 | 0.17 | 0.70 | 0.57 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 01RAY051A1 | 01RAY121A1 | 01RAY126A1 | 02RAYG231A1 | 02RAYG234A1 |
|---|---|---|---|---|---|
| Location | Western Belt | Western Belt | Western Belt | Western Belt | Western Belt |
| Age (Timescale) | Permian | Permian | Permian | Permian | Permian |
| Age (Ma) | 260 | 260 | 260 | 260 | 260 |
| Easting (UTM) | 567351 | 551987 | 551850 | 512932 | 514568 |
| Northing (UTM) | 7000708 | 7006550 | 7003755 | 7040153 | 7038033 |
| $SiO_2$ | 76.91 | 73.82 | 70.26 | 73.42 | 69.20 |
| $TiO_2$ | 0.07 | 0.13 | 0.28 | 0.12 | 0.29 |
| $Al_2O_3$ | 12.83 | 14.02 | 14.74 | 14.30 | 14.99 |
| $Fe_2O_3T$ | 1.26 | 1.75 | 2.77 | 1.75 | 3.00 |
| MnO | 0.03 | 0.03 | 0.06 | 0.03 | 0.05 |
| MgO | 0.03 | 0.20 | 0.73 | 0.09 | 0.69 |
| CaO | 1.19 | 0.86 | 2.27 | 0.72 | 2.36 |
| $K_2O$ | 3.96 | 5.35 | 5.09 | 4.50 | 4.10 |
| $Na_2O$ | 2.85 | 2.59 | 2.41 | 3.43 | 2.48 |
| $P_2O_5$ | 0.01 | 0.02 | 0.07 | 0.02 | 0.08 |
| LOI | 0.36 | 0.72 | 0.92 | 0.64 | 1.23 |
| Total | 99.51 | 99.50 | 99.60 | 99.02 | 98.47 |
| Ni (ppm) | 2 | 2 | 7 | 6 | 7 |
| Cr | 3 | 1 | 17 | - | 17 |
| Co | 3.0 | 1.0 | 3.0 | 3.0 | 4.0 |
| V | 15 | 13 | 30 | 13 | 26 |
| S | - | - | - | 371 | 128 |
| Sc | 3.0 | 2.0 | 4.0 | 3.4 | 3.7 |
| Cu | - | - | 9 | - | 4 |
| Pb | 22 | 28 | 29 | - | - |
| Zn | 25 | 29 | 42 | 22 | 46 |
| As | 3.3 | 3.2 | 2.8 | - | - |
| Mo | - | - | - | - | - |
| W | - | - | - | - | - |
| Cd | - | 3 | 4 | - | 4 |
| Nb | 6.7 | 16.2 | 14.3 | 15.1 | 15.2 |
| Ta | 0.86 | 1.43 | 0.98 | 1.20 | 1.19 |
| Zr | 78.3 | 152.3 | 165.3 | 149.7 | 158.1 |
| Hf | 3.04 | 4.68 | 4.40 | 4.74 | 4.57 |
| Y | 36.0 | 17.6 | 21.5 | 35.0 | 27.2† |
| Ga | 14.0 | 15.6 | 15.5 | 16.9 | 17.3 |
| Cs | 2.36 | 5.00 | 4.62 | 1.75 | 2.81 |
| Sr | 138 | 141 | 189 | 75 | 248 |
| Rb | 141.7 | 197.5 | 187.5 | 143.1 | 133.4 |
| Ba | 1729 | 669 | 1118 | 1515 | 1178 |
| Be | - | - | - | 1.78 | 2.19 |
| Li | 4 | 11 | 18 | 5 | 10 |
| Th | 13.63 | 26.81 | 21.19 | 23.91 | 22.16 |
| U | 3.57 | 5.77 | 3.03 | 5.93 | 3.69 |
| La | 9.27 | 9.58 | 26.46 | 51.98 | 30.81 |
| Ce | 31.99 | 55.66 | 60.30 | 89.03 | 66.25 |
| Pr | 3.06 | 2.02 | 5.64 | 10.62 | 6.18 |
| Nd | 11.54 | 6.77 | 19.19 | 35.70 | 20.61 |
| Sm | 3.34 | 1.65 | 3.88 | 6.69 | 3.92 |
| Eu | 0.48 | 0.36 | 0.94 | 0.90 | 0.94 |
| Gd | 3.61 | 1.82 | 3.44 | 6.01 | 3.32 |
| Tb | 0.76 | 0.38 | 0.57 | 0.97 | 0.55 |
| Dy | 5.43 | 2.55 | 3.49 | 5.83 | 3.15 |
| Ho | 1.27 | 0.60 | 0.74 | 1.28 | 0.71 |
| Er | 3.94 | 1.90 | 2.17 | 3.80 | 1.99 |
| Tm | 0.66 | 0.34 | 0.33 | 0.58 | 0.32 |
| Yb | 4.38 | 2.32 | 2.06 | 3.69 | 2.09 |
| Lu | 0.69 | 0.37 | 0.33 | 0.59 | 0.32 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 02RAYG275A2 | 02RAYP055A1 | 02RAY103A1 | 02RAY109A1 | 02RAY110A2 |
|---|---|---|---|---|---|
| Location | Western Belt | Western Belt | Western Belt | Western Belt | Western Belt |
| Age (Timescale) | Permian | Permian | Permian | Permian | Permian |
| Age (Ma) | 260 | 260 | 260 | 260 | 260 |
| Easting (UTM) | 532402 | 546977 | 522867 | 524658 | 524010 |
| Northing (UTM) | 7009123 | 7036820 | 7017802 | 7017672 | 7018032 |
| $SiO_2$ | 71.09 | 77.64 | 76.65 | 71.66 | 71.50 |
| $TiO_2$ | 0.30 | 0.04 | 0.12 | 0.32 | 0.30 |
| $Al_2O_3$ | 14.80 | 12.46 | 12.19 | 14.22 | 13.86 |
| $Fe_2O_3T$ | 2.63 | 1.08 | 1.35 | 2.60 | 2.47 |
| MnO | 0.04 | 0.12 | 0.02 | 0.05 | 0.04 |
| MgO | 0.53 | 0.11 | 0.09 | 0.72 | 0.50 |
| CaO | 1.47 | 0.29 | 0.92 | 2.00 | 1.81 |
| $K_2O$ | 4.60 | 4.72 | 4.94 | 4.95 | 4.71 |
| $Na_2O$ | 2.42 | 2.65 | 2.13 | 1.62 | 2.29 |
| $P_2O_5$ | 0.07 | 0.01 | 0.02 | 0.06 | 0.06 |
| LOI | 1.00 | 0.39 | 0.79 | 1.21 | 1.62 |
| Total | 98.95 | 99.51 | 99.22 | 99.41 | 99.16 |
| Ni (ppm) | 7 | | 6 | 7 | 7 |
| Cr | 7 | 4 | 1 | 17 | 7 |
| Co | 2.0 | 3.0 | 28.8 | 3.0 | 3.0 |
| V | 28 | 8 | 359 | 27 | 23 |
| S | 103 | 69 | 1021 | 192 | 170 |
| Sc | 5.0 | - | 33.0 | 4.0 | 4.0 |
| Cu | - | - | 24 | 3 | - |
| Pb | - | 11 | 4 | 28 | 31 |
| Zn | 45 | 18 | 108 | 41 | 43 |
| As | - | - | - | 2.2 | 4.2 |
| Mo | - | - | - | - | - |
| W | - | - | - | - | - |
| Cd | 7 | 4 | 15 | 10 | 11 |
| Nb | 11.4 | 11.3 | 3.3† | 18.4 | 15.7 |
| Ta | 0.75 | 1.92 | - | 1.43 | 0.95 |
| Zr | 186.6 | 145.1 | 59.5† | 181.3 | 171.2 |
| Hf | 5.56 | 6.43 | 1.46 | 5.24 | 4.80 |
| Y | 23.5 | 14.1 | 24.4 | 29.0 | 24.9 |
| Ga | 14.9 | 11.7 | 19.5 | 17.3 | 15.8 |
| Cs | 2.45 | 0.74 | 0.19 | 1.47 | 3.86 |
| Sr | 178 | 46 | 260 | 268 | 185 |
| Rb | 152.8 | 136.6 | 15.4 | 102.5 | 149.7 |
| Ba | 2518 | 185 | 216 | 880 | 629 |
| Be | 1.31 | - | - | - | - |
| Li | 7 | 4 | 10 | 6 | 12 |
| Th | 20.62 | 38.30 | 0.94 | 27.60 | 21.31 |
| U | 4.16 | 5.88 | 0.46 | 4.28 | 3.36 |
| La | 33.43 | 74.51 | 5.35 | 26.53 | 53.61 |
| Ce | 73.34 | 124.44 | 12.98 | 64.64 | 98.49 |
| Pr | 7.18 | 9.74 | 1.92 | 6.16 | 10.63 |
| Nd | 24.75 | 27.91 | 9.36 | 22.95 | 36.61 |
| Sm | 4.75 | 3.41 | 2.92 | 5.05 | 6.19 |
| Eu | 1.17 | 0.49 | 1.34 | 1.00 | 1.05 |
| Gd | 4.37 | 2.10 | 3.74 | 4.58 | 5.14 |
| Tb | 0.74 | 0.32 | 0.68 | 0.76 | 0.75 |
| Dy | 4.36 | 1.96 | 4.02 | 4.75 | 4.54 |
| Ho | 0.93 | 0.45 | 0.88 | 0.99 | 0.90 |
| Er | 2.55 | 1.69 | 2.62 | 3.03 | 2.50 |
| Tm | 0.39 | 0.34 | 0.38 | 0.42 | 0.38 |
| Yb | 2.49 | 2.62 | 2.45 | 2.74 | 2.21 |
| Lu | 0.38 | 0.50 | 0.38 | 0.39 | 0.33 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 02RAYG072A2 | 03RAY155A1 | 03RAY287A3 | 02RAYG295A2 | 02RAYR001A1 |
|---|---|---|---|---|---|
| Location | Western Belt | Western Belt | Western Belt | Wounded Moose | Wounded Moose |
| Age (Timescale) | Permian | Permian | Permian | Permian | Permian |
| Age (Ma) | 260 | 260 | 260 | 260 | 260 |
| Easting (UTM) | 520924 | 549092 | 547504 | 609673 | 621301 |
| Northing (UTM) | 7028729 | 7003526 | 7035923 | 7048258 | 7029558 |
| $SiO_2$ | 71.39 | 71.99 | 76.83 | 61.42 | 72.89 |
| $TiO_2$ | 0.25 | 0.21 | 0.09 | 0.41 | 0.30 |
| $Al_2O_3$ | 14.88 | 14.32 | 13.03 | 16.45 | 14.10 |
| $Fe_2O_3T$ | 2.53 | 2.38 | 1.34 | 4.19 | 2.30 |
| MnO | 0.04 | 0.03 | 0.02 | 0.07 | 0.04 |
| MgO | 0.41 | 0.58 | 0.18 | 1.67 | 0.22 |
| CaO | 1.61 | 1.98 | 0.76 | 3.53 | 1.44 |
| $K_2O$ | 4.74 | 4.68 | 4.63 | 2.09 | 4.74 |
| $Na_2O$ | 2.33 | 2.41 | 3.00 | 3.23 | 2.48 |
| $P_2O_5$ | 0.05 | 0.12 | 0.03 | 0.21 | 0.06 |
| LOI | 0.84 | 0.82 | 0.27 | 5.40 | 0.42 |
| Total | 99.07 | 99.52 | 100.18 | 98.67 | 98.99 |
| Ni (ppm) | 9 | 11 | 12 | 8 | 7 |
| Cr | | - | 1 | 25 | 3 |
| Co | 0.5 | 3.0 | 3.0 | 10.0 | 3.0 |
| V | 20 | 20 | 6 | 95 | 23 |
| S | 103 | 107 | 103 | 197 | 257 |
| Sc | 3.2 | 3.2 | 2.9 | 7.5 | 4.3 |
| Cu | - | - | - | 1 | - |
| Pb | - | 17 | 17 | - | - |
| Zn | 41 | 26 | 9 | 48 | 38 |
| As | - | 7.9 | 5.1 | - | - |
| Mo | - | - | - | - | - |
| W | - | 10 | 9 | - | - |
| Cd | 5 | - | - | 6 | - |
| Nb | 16.7 | 8.9 | 13.2 | 10.0 | 11.2 |
| Ta | 1.28 | 0.57 | 1.20 | 0.63 | 0.91 |
| Zr | 175.3 | 109.0 | 88.1 | 117.1† | 139.6 |
| Hf | 5.42 | 2.80 | 3.10 | 2.51 | 4.44 |
| Y | 27.9 | 11.2 | 19.2 | 15.3 | 23.7 |
| Ga | 17.2 | 16.2 | 14.4 | 19.0 | 17.0 |
| Cs | 2.66 | 1.68 | 0.55 | 1.64 | 4.48 |
| Sr | 143 | 211 | 71 | 938 | 97 |
| Rb | 158.1 | 113.9 | 113.0 | 54.0 | 173.6 |
| Ba | 498 | 1481 | 577 | 2528 | 1356 |
| Be | 2.58 | 1.29 | 1.11 | 1.09 | 1.48 |
| Li | 19 | 14 | 4 | 30 | 26 |
| Th | 33.33 | 15.60 | 21.98 | 5.12 | 21.38 |
| U | 4.92 | 2.26 | 1.72 | 2.05 | 2.81 |
| La | 43.15 | 28.59 | 19.63 | 18.20 | 16.70 |
| Ce | 88.34 | 61.55 | 49.46 | 37.36 | 64.95 |
| Pr | 8.91 | 5.35 | 4.37 | 4.89 | 3.78 |
| Nd | 29.31 | 17.50 | 14.96 | 19.42 | 12.31 |
| Sm | 5.73 | 2.94 | 2.94 | 4.06 | 2.57 |
| Eu | 0.76 | 0.95 | 0.24 | 1.43 | 0.52 |
| Gd | 5.22 | 2.27 | 2.69 | 3.57 | 2.87 |
| Tb | 0.80 | 0.35 | 0.49 | 0.52 | 0.62 |
| Dy | 4.77 | 2.05 | 3.24 | 2.77 | 4.15 |
| Ho | 1.04 | 0.41 | 0.70 | 0.57 | 0.95 |
| Er | 2.94 | 1.19 | 2.21 | 1.67 | 2.80 |
| Tm | 0.44 | 0.18 | 0.36 | 0.25 | 0.42 |
| Yb | 2.81 | 1.13 | 2.52 | 1.60 | 2.72 |
| Lu | 0.42 | 0.17 | 0.40 | 0.27 | 0.42 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 02RAYR011A1 | 03RAYR025A1 | 03RAYR002A1 | 03RAYR036B1 | 03RAY316A3 |
|---|---|---|---|---|---|
| Location | Wounded Moose | Wounded Moose | Wounded Moose | Wounded Moose | Wounded Moose |
| Age (Timescale) | Permian | Permian | Permian | Permian | Permian |
| Age (Ma) | 260 | 260 | 260 | 260 | 260 |
| Easting (UTM) | 618098 | 621067 | 626075 | 622732 | 616331 |
| Northing (UTM) | 7035914 | 7042637 | 7045321 | 7041763 | 7040808 |
| $SiO_2$ | 69.42 | 74.08 | 74.02 | 76.83 | 77.09 |
| $TiO_2$ | 0.37 | 0.03 | 0.02 | 0.10 | 0.09 |
| $Al_2O_3$ | 14.53 | 14.77 | 15.43 | 12.43 | 12.37 |
| $Fe_2O_3T$ | 2.95 | 1.33 | 0.88 | 2.48 | 1.29 |
| MnO | 0.04 | 0.06 | 0.10 | 0.02 | 0.01 |
| MgO | 0.55 | 0.26 | 0.01 | 0.50 | 0.15 |
| CaO | 1.81 | 0.81 | 0.81 | 1.00 | 0.57 |
| $K_2O$ | 4.20 | 4.81 | 3.73 | 2.17 | 4.73 |
| $Na_2O$ | 2.47 | 2.92 | 4.07 | 3.77 | 3.00 |
| $P_2O_5$ | 0.09 | 0.04 | 0.02 | 0.01 | 0.01 |
| LOI | 1.66 | 0.40 | 0.40 | 0.19 | 0.15 |
| Total | 98.09 | 99.51 | 99.49 | 99.50 | 99.46 |
| Ni (ppm) | 4 | 27 | 27 | 6 | 17 |
| Cr | - | - | - | 107 | - |
| Co | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| V | 36 | 4 | 5 | 11 | 7 |
| S | 120 | 100 | 101 | 112 | 111 |
| Sc | 5.6 | 1.1 | 0.7 | 4.1 | 1.3 |
| Cu | - | - | - | - | - |
| Pb | - | 56 | 56 | 5 | 24 |
| Zn | 49 | 29 | 31 | 13 | 14 |
| As | - | 5.6 | 4.0 | 4.6 | 5.6 |
| Mo | - | - | - | - | - |
| W | - | - | - | - | - |
| Cd | 6 | - | - | - | - |
| Nb | 12.6 | 19.9 | 21.2 | 14.1 | 11.4 |
| Ta | 0.86 | 6.54 | 5.56 | 1.09 | 1.08 |
| Zr | 226.4 | 19.1 | 19.5 | 151.6 | 124.0 |
| Hf | 6.37 | 1.10 | 1.30 | 5.00 | 4.40 |
| Y | 24.3 | 18.3 | 21.2 | 26.3 | 21.7 |
| Ga | 16.8 | 25.2 | 26.7 | 14.9 | 18.0 |
| Cs | 2.75 | 7.44 | 18.05 | 0.23 | 0.46 |
| Sr | 225 | 43 | 23 | 149 | 41 |
| Rb | 139.2 | 291.0 | 320.6 | 51.6 | 134.7 |
| Ba | 2474 | 50 | 13 | 3149 | 497 |
| Be | 1.38 | 8.59 | 10.86 | 1.27 | 1.79 |
| Li | 9 | 24 | 25 | 2 | 1 |
| Th | 21.16 | 2.38 | 2.15 | 17.34 | 23.29 |
| U | 3.48 | 1.93 | 1.92 | 2.11 | 2.58 |
| La | 43.65 | 5.34 | 8.02 | 33.12 | 24.35 |
| Ce | 103.48 | 11.38 | 13.44 | 75.51 | 52.23 |
| Pr | 9.58 | 1.40 | 2.00 | 7.65 | 4.84 |
| Nd | 31.44 | 4.97 | 6.75 | 27.41 | 15.67 |
| Sm | 5.54 | 1.70 | 2.28 | 4.90 | 2.79 |
| Eu | 1.17 | 0.22 | 0.16 | 0.55 | 0.16 |
| Gd | 4.50 | 2.18 | 2.58 | 3.94 | 2.62 |
| Tb | 0.74 | 0.55 | 0.63 | 0.66 | 0.48 |
| Dy | 4.53 | 3.48 | 4.02 | 4.31 | 3.26 |
| Ho | 0.96 | 0.59 | 0.66 | 0.96 | 0.75 |
| Er | 2.74 | 1.52 | 1.77 | 2.99 | 2.37 |
| Tm | 0.41 | 0.21 | 0.27 | 0.47 | 0.38 |
| Yb | 2.68 | 1.32 | 1.81 | 3.08 | 2.63 |
| Lu | 0.41 | 0.17 | 0.25 | 0.47 | 0.40 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 03GGAC186A1 | 03GGA248A1 | 03GGA194A1 | 03RAYR037A1 | 03RAYR030A1 |
|---|---|---|---|---|---|
| Location | Wounded Moose | Wounded Moose | Wounded Moose | Wounded Moose | Wounded Moose |
| Age (Timescale) | Permian | Permian | Permian | Permian | Permian |
| Age (Ma) | 260 | 260 | 260 | 260 | 260 |
| Easting (UTM) | 616497 | 609778 | 609386 | 626312 | 623260 |
| Northing (UTM) | 7029797 | 7049774 | 7051164 | 7028033 | 7039950 |
| $SiO_2$ | 71.13 | 74.99 | 71.72 | 70.34 | 76.97 |
| $TiO_2$ | 0.50 | 0.13 | 0.37 | 0.38 | 0.13 |
| $Al_2O_3$ | 14.70 | 13.55 | 14.49 | 15.03 | 12.39 |
| $Fe_2O_3T$ | 3.45 | 1.77 | 2.97 | 3.48 | 1.63 |
| MnO | 0.04 | 0.03 | 0.05 | 0.04 | 0.02 |
| MgO | 0.77 | 0.22 | 0.77 | 1.05 | 0.26 |
| CaO | 1.82 | 0.97 | 2.37 | 1.63 | 0.57 |
| $K_2O$ | 4.52 | 4.72 | 4.52 | 3.23 | 5.04 |
| $Na_2O$ | 2.59 | 2.90 | 2.47 | 4.13 | 2.05 |
| $P_2O_5$ | 0.14 | 0.03 | 0.09 | 0.09 | 0.15 |
| LOI | 0.71 | 0.17 | 0.46 | 0.55 | 0.30 |
| Total | 100.37 | 99.48 | 100.28 | 99.95 | 99.51 |
| Ni (ppm) | 10 | 13 | 26 | 17 | 18 |
| Cr | 23 | 1207 | 3 | 7 | 8 |
| Co | 1.0 | 3.0 | 4.5 | 1.0 | 2.0 |
| V | 38 | 12 | 30 | 39 | 34 |
| S | 90 | 103 | 144 | 110 | 111 |
| Sc | 5.7 | 3.8 | 5.1 | 6.5 | 5.1 |
| Cu | - | - | - | - | - |
| Pb | 17 | 30 | 21 | 5 | 18 |
| Zn | 23 | 44 | 36 | 22 | 36 |
| As | 5.7 | 5.6 | 5.3 | 4.1 | 5.7 |
| Mo | - | - | - | - | - |
| W | 8 | 7 | 7 | - | - |
| Cd | - | - | - | - | - |
| Nb | 10.3 | 13.2 | 10.5 | 12.9 | 13.6 |
| Ta | 0.54 | 1.02 | 0.76 | 0.87 | 1.18 |
| Zr | 167.8 | 174.1 | 150.9 | 193.8 | 152.3 |
| Hf | 4.30 | 5.30 | 4.20 | 4.80 | 4.50 |
| Y | 16.5 | 12.9 | 18.4 | 22.8 | 25.4 |
| Ga | 20.5 | 20.3 | 15.0 | 30.4 | 16.4 |
| Cs | 2.30 | 4.20 | 2.75 | 0.52 | 2.09 |
| Sr | 131 | 96 | 241 | 150 | 139 |
| Rb | 114.2 | 156.0 | 119.7 | 114.7 | 130.8 |
| Ba | 1473 | 2013 | 2664 | 3584 | 2021 |
| Be | 0.92 | 1.76 | 1.28 | 2.01 | 1.48 |
| Li | 12 | 8 | 15 | 6 | 15 |
| Th | 8.48 | 22.03 | 18.96 | 14.41 | 19.43 |
| U | 1.39 | 2.06 | 4.06 | 3.21 | 4.51 |
| La | 42.73 | 27.81 | 45.22 | 35.93 | 34.49 |
| Ce | 84.49 | 53.56 | 89.63 | 82.36 | 73.20 |
| Pr | 9.17 | 5.93 | 9.06 | 7.46 | 7.26 |
| Nd | 31.55 | 20.90 | 30.80 | 27.07 | 25.12 |
| Sm | 5.43 | 3.77 | 5.09 | 5.03 | 4.66 |
| Eu | 1.13 | 0.47 | 1.22 | 1.30 | 0.72 |
| Gd | 4.25 | 2.96 | 3.92 | 4.32 | 4.11 |
| Tb | 0.63 | 0.43 | 0.58 | 0.67 | 0.70 |
| Dy | 3.49 | 2.47 | 3.34 | 4.02 | 4.36 |
| Ho | 0.65 | 0.49 | 0.66 | 0.83 | 0.92 |
| Er | 1.73 | 1.49 | 1.94 | 2.45 | 2.76 |
| Tm | 0.23 | 0.24 | 0.29 | 0.36 | 0.42 |
| Yb | 1.39 | 1.63 | 1.89 | 2.38 | 2.75 |
| Lu | 0.21 | 0.25 | 0.28 | 0.35 | 0.40 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | 03RAYR050A1 | 03RAY082A1 | 03RAY084A1 | 03GGA091A2 | 03GGA164A1 |
|---|---|---|---|---|---|
| Location | Wounded Moose | Rosebute Creek | Rosebute Creek | Rosebute Creek | Rosebute Creek |
| Age (Timescale) | Permian | Permian | Permian | Permian | Permian |
| Age (Ma) | 260 | 260 | 260 | 260 | 260 |
| Easting (UTM) | 620031 | 584939 | 583892 | 570521 | 578605 |
| Northing (UTM) | 7028833 | 7041614 | 7040647 | 7039257 | 7050506 |
| $SiO_2$ | 75.08 | 71.15 | 72.04 | 69.92 | 72.02 |
| $TiO_2$ | 0.16 | 0.25 | 0.20 | 0.35 | 0.26 |
| $Al_2O_3$ | 13.60 | 14.61 | 14.27 | 14.83 | 14.00 |
| $Fe_2O_3T$ | 1.54 | 3.77 | 3.02 | 3.67 | 3.44 |
| MnO | 0.03 | 0.09 | 0.08 | 0.07 | 0.08 |
| MgO | 0.31 | 1.02 | 0.58 | 0.96 | 1.13 |
| CaO | 1.57 | 3.38 | 2.85 | 2.33 | 1.96 |
| $K_2O$ | 5.01 | 3.23 | 3.27 | 4.06 | 3.50 |
| $Na_2O$ | 2.56 | 2.32 | 2.55 | 2.42 | 2.84 |
| $P_2O_5$ | 0.01 | 0.08 | 0.06 | 0.10 | 0.07 |
| LOI | 0.45 | -0.42 | 0.65 | 0.78 | 0.57 |
| Total | 100.32 | 99.48 | 99.57 | 99.49 | 99.87 |
| Ni (ppm) | 16 | 6 | 5 | 19 | 13 |
| Cr | - | - | - | 2 | 23 |
| Co | 4.0 | 2.0 | 9.3 | 3.0 | 3.0 |
| V | 15 | 48 | 35 | 38 | 46 |
| S | 199 | 105 | 85 | 129 | 117 |
| Sc | 2.6 | 5.9 | 4.5 | 5.1 | 6.1 |
| Cu | - | 10 | 48 | - | - |
| Pb | 30 | 19 | 14 | 26 | 5 |
| Zn | 17 | 40 | 38 | 49 | 41 |
| As | 5.8 | 4.9 | 7.0 | 4.0 | 2.3 |
| Mo | - | - | - | - | 14 |
| W | - | 7 | 5 | 8 | 5 |
| Cd | - | - | - | - | - |
| Nb | 10.7 | 8.5 | 8.2 | 15.9 | 8.7 |
| Ta | 1.38 | 0.79 | 0.77 | 1.34 | 0.78 |
| Zr | 112.5 | 108.1 | 97.4 | 148.8 | 99.6 |
| Hf | 3.70 | 3.00 | 2.70 | 4.00 | 2.60 |
| Y | 22.3 | 11.5 | 10.8 | 22.7 | 5.4 |
| Ga | 14.8 | 15.6 | 14.5 | 15.6 | 13.2 |
| Cs | 2.17 | 0.98 | 0.53 | 3.66 | 0.97 |
| Sr | 130 | 309 | 255 | 295 | 78 |
| Rb | 144.7 | 100.9 | 91.8 | 145.0 | 101.1 |
| Ba | 1442 | 1027 | 947 | 1179 | 750 |
| Be | 1.55 | 0.96 | 0.99 | 1.61 | 0.92 |
| Li | 6 | 9 | 11 | 12 | 11 |
| Th | 26.92 | 16.64 | 18.36 | 26.09 | 9.27 |
| U | 6.52 | 3.47 | 3.61 | 4.65 | 1.55 |
| La | 30.52 | 34.42 | 40.01 | 41.07 | 23.15 |
| Ce | 60.60 | 60.06 | 72.02 | 102.54 | 42.31 |
| Pr | 6.45 | 5.69 | 6.65 | 8.88 | 3.33 |
| Nd | 21.83 | 17.66 | 19.75 | 30.66 | 10.14 |
| Sm | 3.90 | 2.71 | 2.89 | 5.42 | 1.37 |
| Eu | 0.55 | 0.68 | 0.63 | 0.98 | 0.34 |
| Gd | 3.18 | 2.11 | 2.04 | 4.26 | 0.89 |
| Tb | 0.54 | 0.32 | 0.31 | 0.66 | 0.14 |
| Dy | 3.54 | 1.92 | 1.84 | 3.90 | 0.93 |
| Ho | 0.76 | 0.40 | 0.38 | 0.80 | 0.20 |
| Er | 2.46 | 1.21 | 1.18 | 2.38 | 0.72 |
| Tm | 0.39 | 0.19 | 0.19 | 0.37 | 0.13 |
| Yb | 2.71 | 1.36 | 1.34 | 2.47 | 0.96 |
| Lu | 0.41 | 0.22 | 0.22 | 0.37 | 0.16 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

TABLE R1. Major and trace element geochemistry for K-feldspar augen granitoids of this study

| Sample Name | P02-25 | P02-26 |
|---|---|---|
| Location | Klondike Schist | Klondike Schist |
| Age (Timescale) | Permian | Permian |
| Age (Ma) | 260 | 260 |
| Easting (UTM) | 610134 | 609444 |
| Northing (UTM) | 7065654 | 7066233 |
| $SiO_2$ | 79.27 | 78.86 |
| $TiO_2$ | 0.15 | 0.42 |
| $Al_2O_3$ | 10.79 | 10.71 |
| $Fe_2O_3T$ | 0.84 | 2.26 |
| MnO | 0.01 | 0.03 |
| MgO | 0.11 | 0.62 |
| CaO | 0.06 | 0.22 |
| $K_2O$ | 1.22 | 3.34 |
| $Na_2O$ | 7.07 | 2.31 |
| $P_2O_5$ | 0.04 | 0.09 |
| LOI | 0.38 | 1.20 |
| Total | 99.93 | 100.06 |
| Ni (ppm) | 20 | 28 |
| Cr | 20 | 27 |
| Co | 1.0 | 2.3 |
| V | 5 | 21 |
| S | - | - |
| Sc | 2.0 | 10.0 |
| Cu | 10 | 10 |
| Pb | 5 | 11 |
| Zn | 30 | 64 |
| As | - | - |
| Mo | - | - |
| W | - | - |
| Cd | - | - |
| Nb | 7.5 | 11.3 |
| Ta | 0.84 | 0.94 |
| Zr | 115.1 | 153.8 |
| Hf | 4.05 | 4.72 |
| Y | 15.5 | 19.7 |
| Ga | 11.5 | 12.9 |
| Cs | 2.12 | 0.67 |
| Sr | 42 | 29 |
| Rb | 143.8 | 75.3 |
| Ba | 1760 | 2200 |
| Be | - | - |
| Li | - | - |
| Th | 20.29 | 10.61 |
| U | 4.02 | 2.12 |
| La | 33.14 | 29.64 |
| Ce | 56.29 | 53.79 |
| Pr | 5.74 | 6.35 |
| Nd | 19.45 | 24.23 |
| Sm | 3.36 | 4.53 |
| Eu | 0.42 | 0.82 |
| Gd | 2.72 | 3.88 |
| Tb | 0.46 | 0.63 |
| Dy | 2.65 | 3.52 |
| Ho | 0.54 | 0.70 |
| Er | 1.61 | 2.02 |
| Tm | 0.24 | 0.30 |
| Yb | 1.71 | 2.03 |
| Lu | 0.27 | 0.34 |

† XRF values substituted for ICP-MS analyses with lower element abundances

Coordinates are UTM zone 7, NAD 83

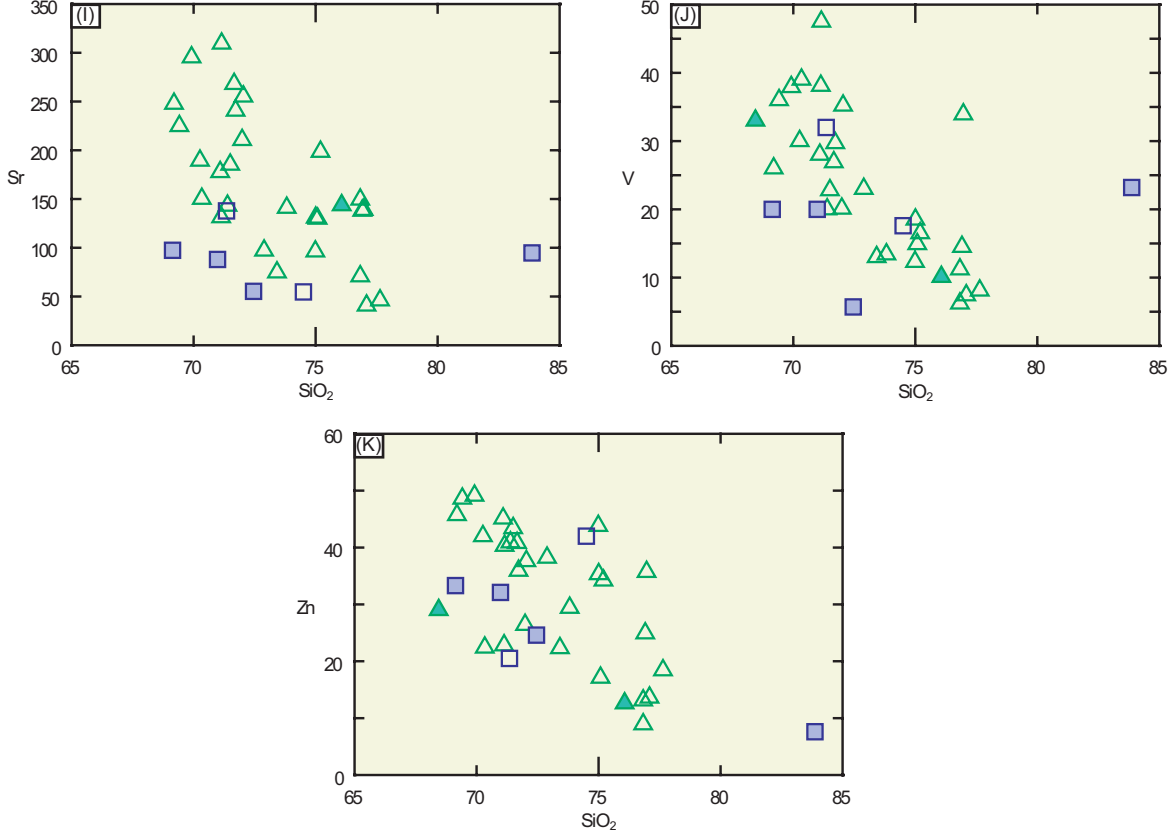



Figure DR1 (continued). Ruks et al.

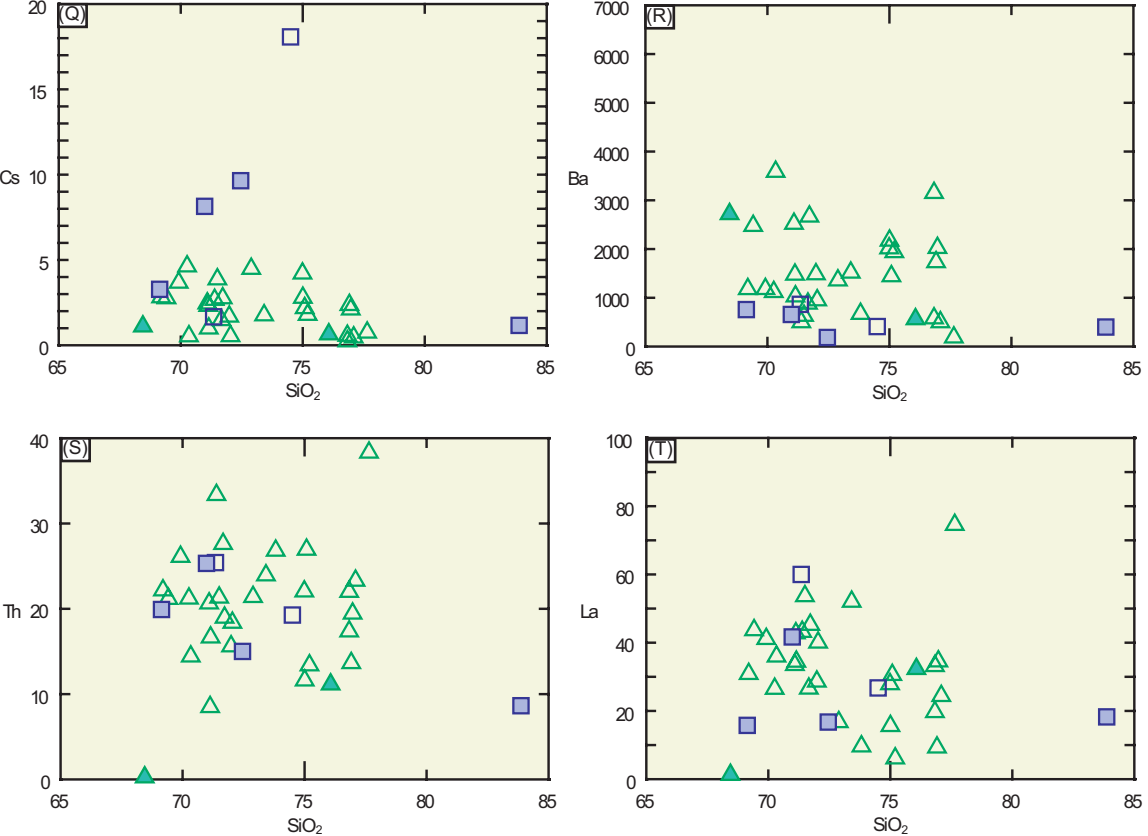
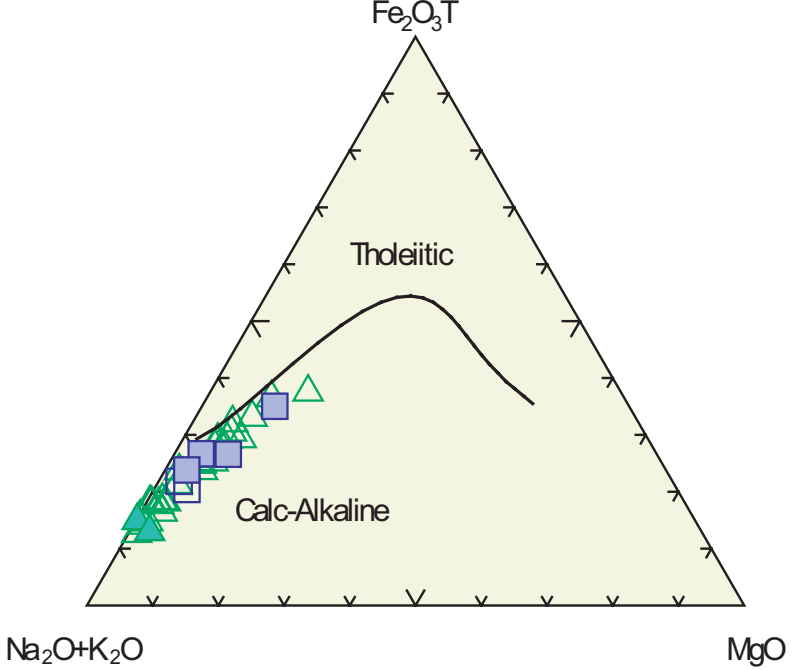



Figure DR1 (continued). Ruks et al.



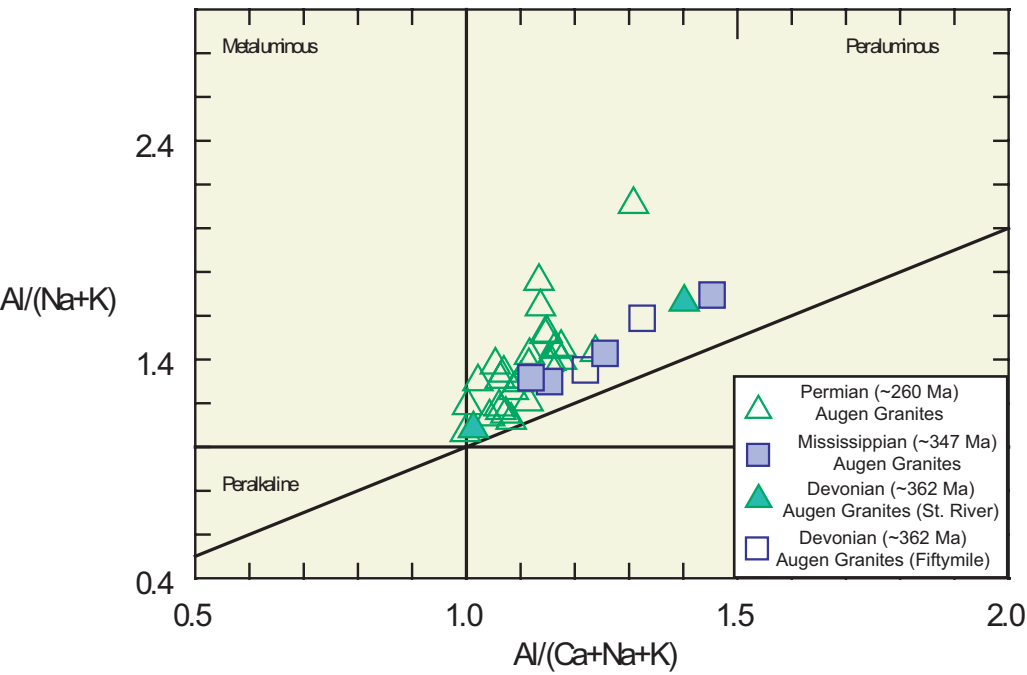




Figure DR2. Ruks et al.

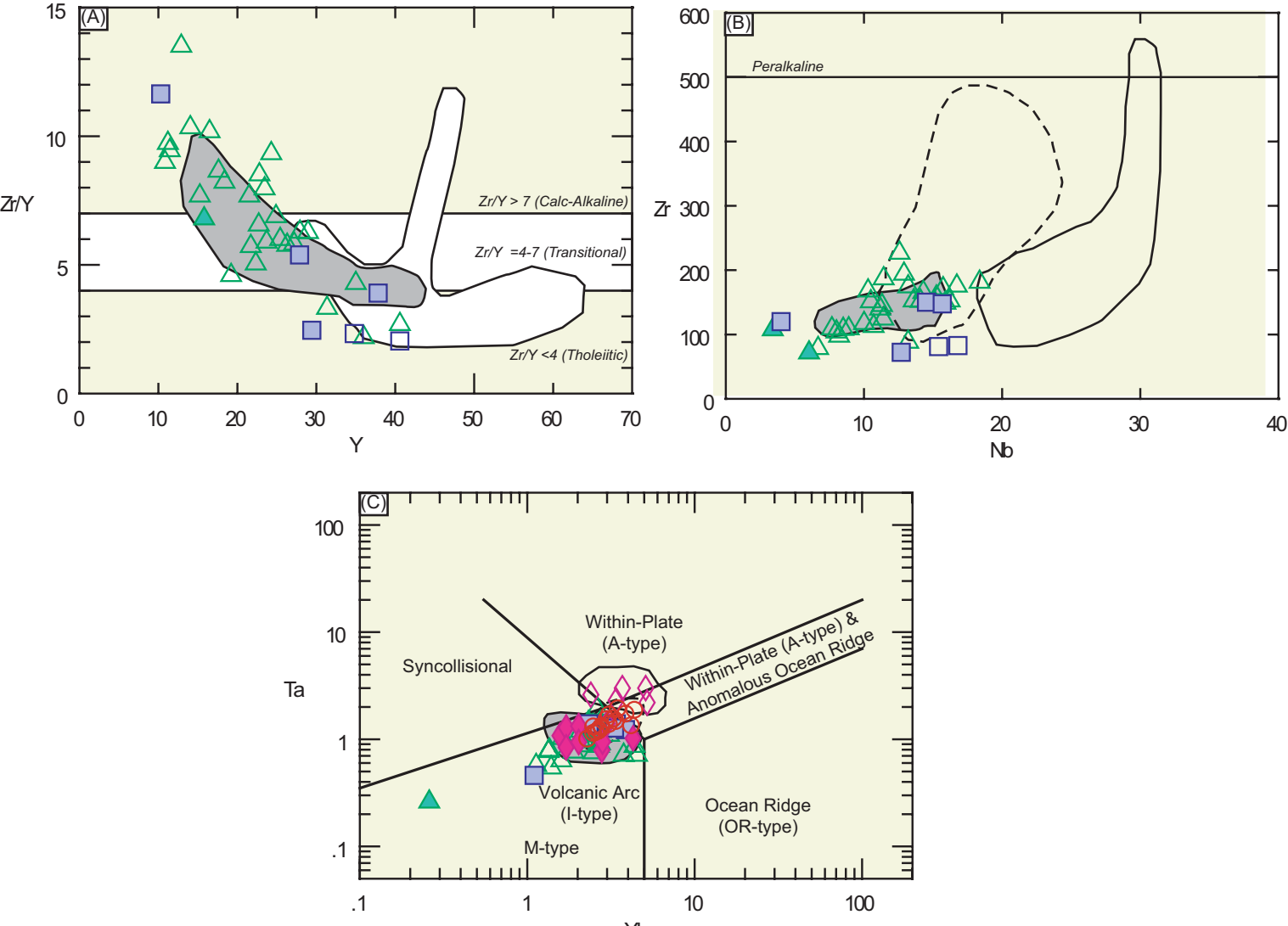



Figure DR3. Ruks et al.