

Lab 6: Proportional Symbols

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GEOG 323 B02

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1.

Table 1: Upper Class Bounds and GVF Values for Natural Breaks Classification (3 and 4 Classes)

| Classification | Number of Classes | Class 1 Upper Bound | Class 2 Upper Bound | Class 3 Upper Bound | Class 4 Upper Bound | GVF Value |
|------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|-----------|
| Natural Breaks (Jenks) | 3 | 202 | 410 | 804 | N/A | 0.98 |
| Natural Breaks (Jenks) | 4 | 96 | 202 | 410 | 804 | 0.99 |

| ARRAY | Standard Deviation from array mean squared | Array Count | Class Number | Class Upper Limit | Number of observations in each class | Class Mean | Array Mean (\bar{x}) | SDAM (Sum of standard deviations from array mean) | Sum of the squared deviations from each class mean |
|-------|--|-------------|--------------|-------------------|--------------------------------------|------------|--------------------------------|---|--|
| 73 | 30598.08 | 13 | | 202 | 10 | 125.2 | 247.92 | 760026.92 | 14767.60 |
| 79 | 28535.01 | | 2 | 410 | 1 | 410 | | | 0.00 |
| 96 | 23080.62 | | 3 | 804 | 2 | 780.5 | | | 1104.50 |
| 117 | 17140.85 | | 4 | | 0 | #DIV/0! | | | 0.00 |
| 119 | 16621.16 | | 5 | | 0 | #DIV/0! | | | 0.00 |
| 121 | 16109.47 | | 6 | | 0 | #DIV/0! | | | 0.00 |
| 130 | 13905.85 | | 7 | | 0 | #DIV/0! | | | 0.00 |
| 136 | 12526.78 | | 8 | | 0 | #DIV/0! | | | 0.00 |
| 179 | 4750.39 | | 9 | | 0 | #DIV/0! | | | 0.00 |
| 202 | 2108.93 | | 10 | | 0 | #DIV/0! | | | 0.00 |
| 410 | 26268.93 | | 11 | | 0 | #DIV/0! | | | 0.00 |
| 757 | 259159.31 | | 12 | | 0 | #DIV/0! | | | 0.00 |
| 804 | 309221.54 | | | Checksum | Good | | | | |
| | 0.00 | | | | | | SDCM* | 15872.10 | |
| | 0.00 | | | | | | Goodness of Variance Fit (GVF) | 0.98 | |
| | 0.00 | | | | | | Empty Class Check | OK | |

Figure 1: Natural Breaks (3 Classes) GVF Calculator Screenshot

| ARRAY | Standard Deviation from array mean squared | Array Count | Class Number | Class Upper Limit | Number of observations in each class | Class Mean | Array Mean (\bar{x}) | SDAM (Sum of standard deviations from array mean) | Sum of the squared deviations from each class mean |
|-------|--|-------------|--------------|-------------------|--------------------------------------|------------|--------------------------------|---|--|
| 73 | 30598.08 | 13 | | 96 | 3 | 82.67 | 247.92 | 760026.92 | 284.67 |
| 79 | 28535.01 | | 2 | 202 | 7 | 143.43 | | | 6729.71 |
| 96 | 23080.62 | | 3 | 410 | 1 | 410 | | | 0.00 |
| 117 | 17140.85 | | 4 | 804 | 2 | 780.5 | | | 1104.50 |
| 119 | 16621.16 | | 5 | | 0 | #DIV/0! | | | 0.00 |
| 121 | 16109.47 | | 6 | | 0 | #DIV/0! | | | 0.00 |
| 130 | 13905.85 | | 7 | | 0 | #DIV/0! | | | 0.00 |
| 136 | 12526.78 | | 8 | | 0 | #DIV/0! | | | 0.00 |
| 179 | 4750.39 | | 9 | | 0 | #DIV/0! | | | 0.00 |
| 202 | 2108.93 | | 10 | | 0 | #DIV/0! | | | 0.00 |
| 410 | 26268.93 | | 11 | | 0 | #DIV/0! | | | 0.00 |
| 757 | 259159.31 | | 12 | | 0 | #DIV/0! | | | 0.00 |
| 804 | 309221.54 | | | Checksum | Good | | | | |
| | 0.00 | | | | | | SDCM* | 8118.88 | |
| | 0.00 | | | | | | Goodness of Variance Fit (GVF) | 0.99 | |
| | 0.00 | | | | | | Empty Class Check | OK | |

Figure 2: Natural Breaks (4 Classes) GVF Calculator Screenshot

Symbol Sizes: 18pt to 38pt

2.

- Symbols in the legend = 3
- Minimum symbol size = 14pt
- Flannery = enabled

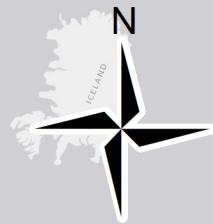
3.

- Minimum symbol size = 14pt
- 3D = enabled
- Vary size parameter = Arthritis
- Normalization parameter = 2015 Population

Maps are presented on the subsequent pages in the following order:

1. Graduated Symbol Map
2. Proportional Symbol Map
3. Pie Chart Map
4. Stacked Bar Chart Map
5. Bar/Column Map

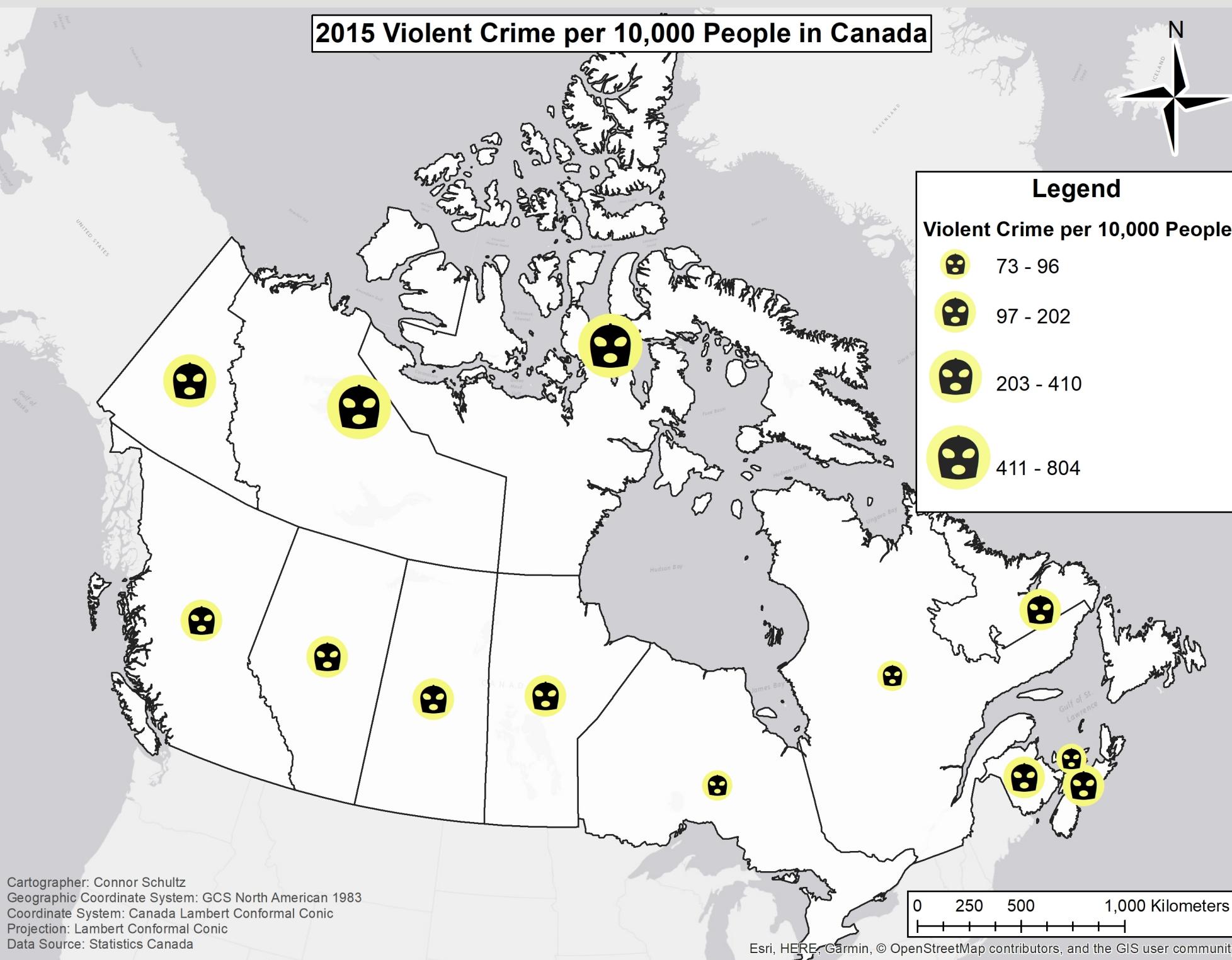
2015 Violent Crime per 10,000 People in Canada



Legend

Violent Crime per 10,000 People

- 73 - 96
- 97 - 202
- 203 - 410
- 411 - 804

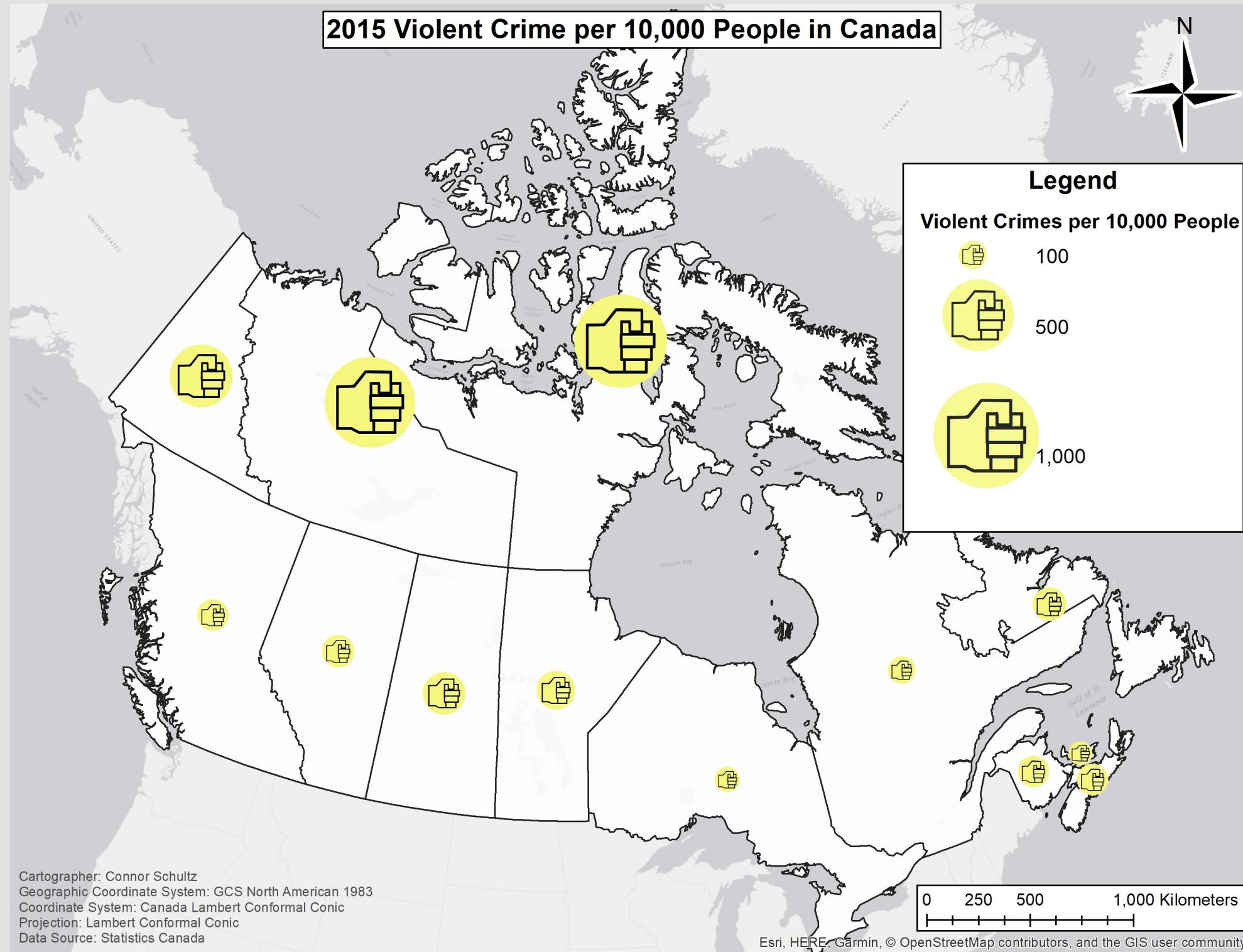
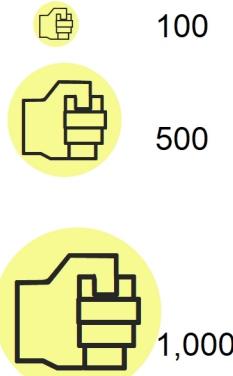


2015 Violent Crime per 10,000 People in Canada



Legend

Violent Crimes per 10,000 People

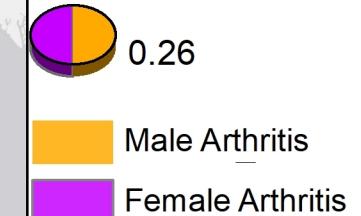


2015 Male and Female Arthritis Rates in Canada Normalized for Population



Legend

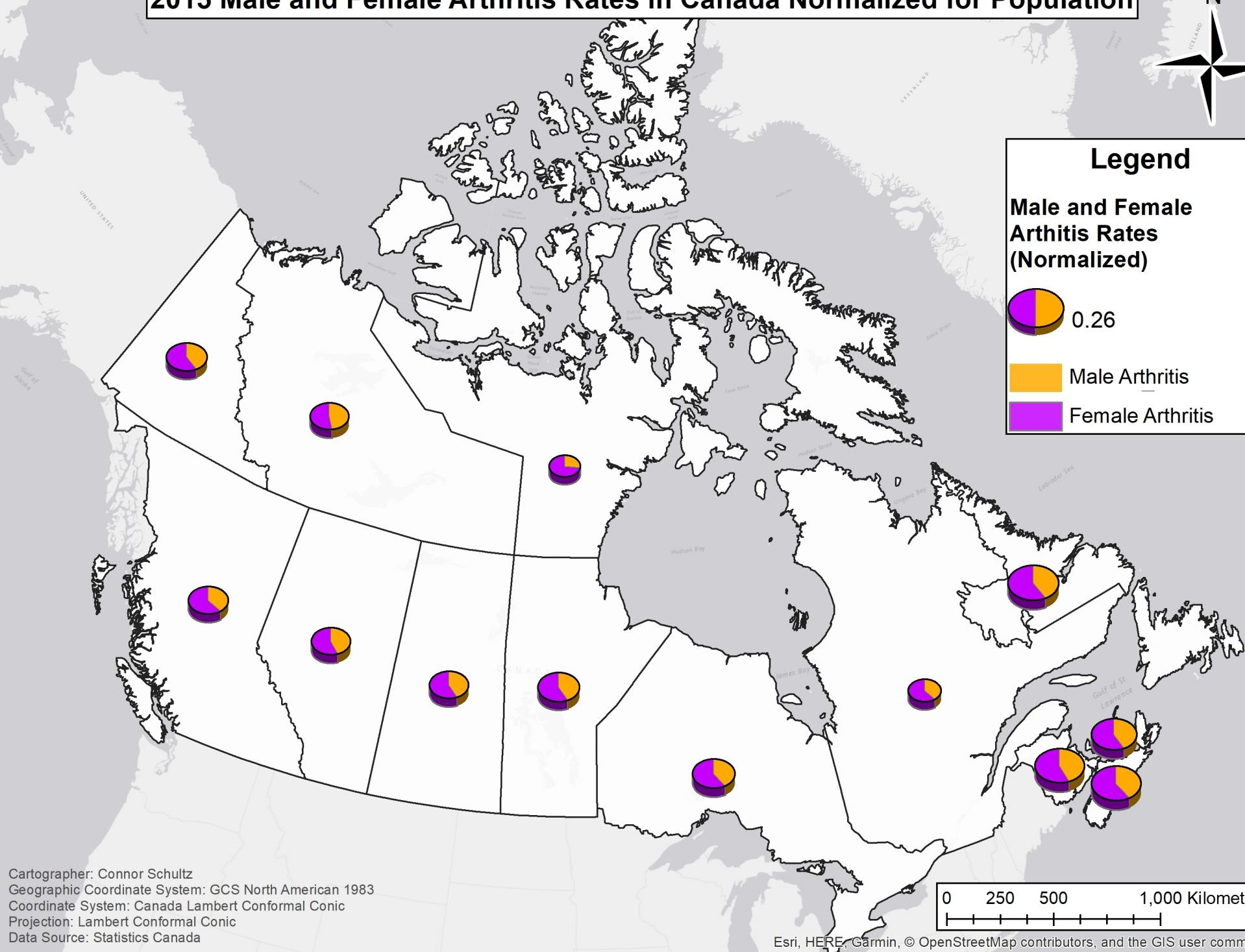
Male and Female
Arthritis Rates
(Normalized)



0.26

Male Arthritis

Female Arthritis



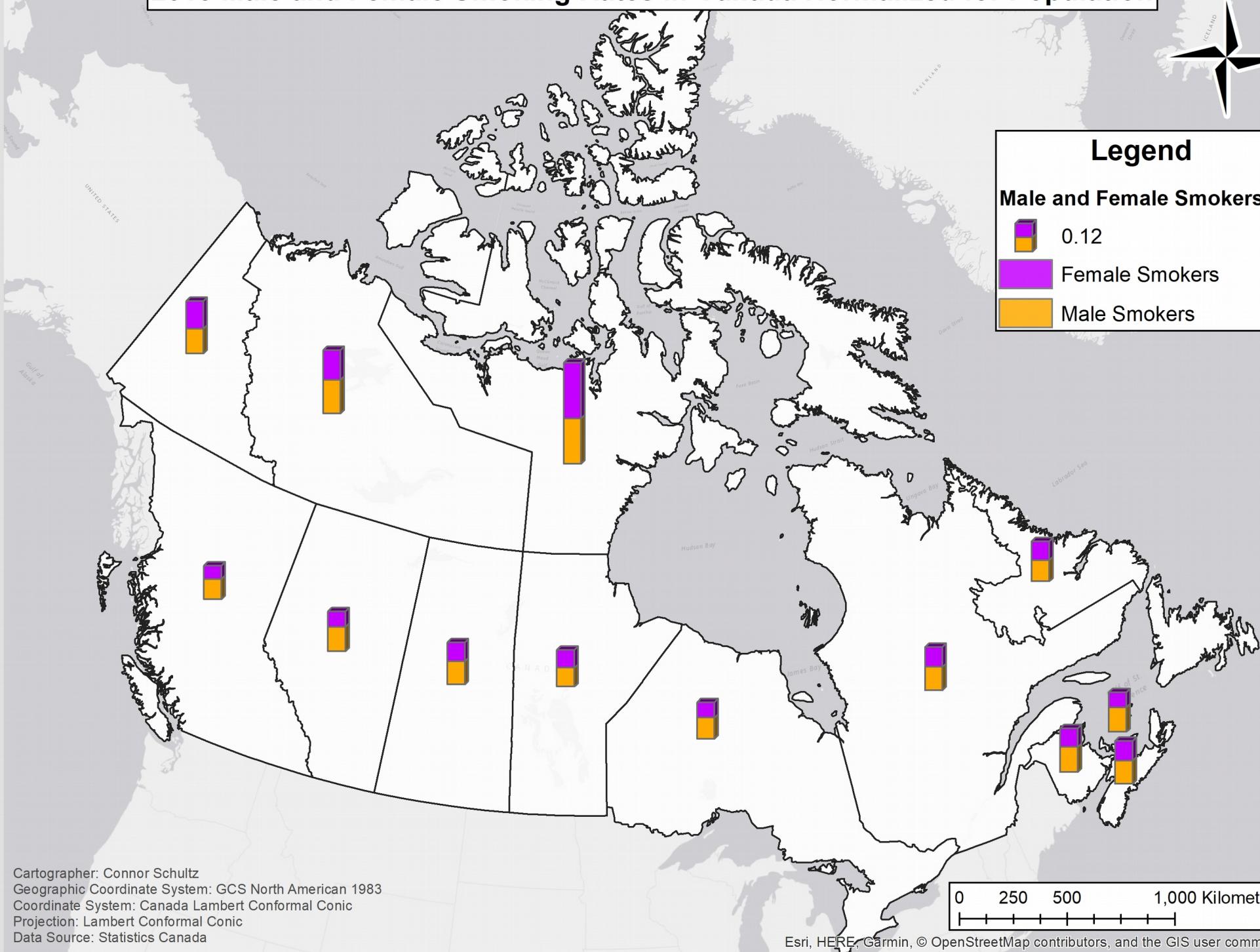
2013 Male and Female Smoking Rates in Canada Normalized for Population



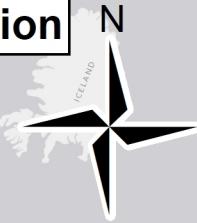
Legend

Male and Female Smokers

- 0.12
- Female Smokers
- Male Smokers

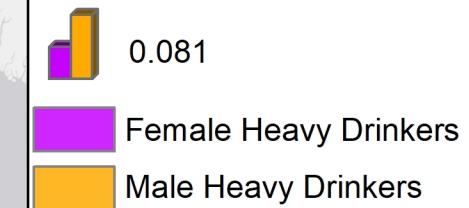


2012 Male and Female Heavy Drinking Rates in Canada Normalized for Population



Legend

Male and Female Heavy Drinkers



2012 Male and Female Heavy Drinking Rates in Canada Normalized for Population

Legend

Male and Female Heavy Drinkers

- 0.081
- Female Heavy Drinkers
- Male Heavy Drinkers

Cartographer: Connor Schultz
Geographic Coordinate System: GCS North American 1983
Coordinate System: Canada Lambert Conformal Conic
Projection: Lambert Conformal Conic
Data Source: Statistics Canada

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0 250 500 1,000 Kilometers