

**Appendix 1.** Summary of generalized additive mixed model (GAMM) results examining bias in roadside measures of disturbance from overall forest loss, forest fires, and anthropogenic disturbances.

Table A1.1 Results of GAMM for bias in measurement of forest loss based on GIS analysis of 20 buffer distances between 25 – 1500m along 455 BBS routes (n=9100).

| Ecozone                        | BCR | Province | Estimate | SE    | <i>t</i> -value | <i>p</i> -value |
|--------------------------------|-----|----------|----------|-------|-----------------|-----------------|
| Boreal Taiga Plains            | 6   | AB       | -0.64    | 0.53  | -1.21           | 0.23            |
|                                |     | BC       | -0.10    | 1.98  | -0.05           | 0.96            |
|                                |     | MB       | -0.24    | 1.06  | -0.22           | 0.82            |
|                                |     | NWT      | -1.06    | 1.21  | -0.88           | 0.38            |
|                                |     | SK       | -0.73    | 0.78  | -0.94           | 0.35            |
| Boreal Hardwood Transition     | 12  | MB       | 3.41     | 1.71  | 1.99            | 0.05            |
|                                |     | ON       | 0.45     | 0.56  | 0.81            | 0.42            |
|                                |     | PQ       | -0.66    | 0.68  | -0.97           | 0.33            |
| Boreal Softwood Shield         | 8   | MB       | -1.91    | 1.25  | -1.53           | 0.13            |
|                                |     | NL       | -0.24    | 1.010 | -0.24           | 0.81            |
|                                |     | ON       | -0.32    | 0.67  | -0.48           | 0.63            |
|                                |     | PQ       | -0.17    | 0.76  | -0.22           | 0.82            |
|                                |     | SK       | 0.92     | 1.34  | 0.68            | 0.49            |
| Taiga Shield and Hudson Plains | 7   | MB       | -0.01    | 4.84  | -0.00           | 1.00            |
|                                |     | NL       | 0.19     | 2.17  | 0.09            | 0.93            |
|                                |     | NWT      | -1.34    | 3.43  | -0.39           | 0.70            |
|                                |     | PQ       | 13.60    | 2.80  | 4.86            | <0.001          |

Table A1.2 Results of GAMM for bias in measurement of forest fire based on GIS analysis of 20 buffer distances between 25 – 1500m along 455 BBS routes (n=9100).

| Ecozone                        | BCR | Province | Estimate | SE   | <i>t</i> -value | <i>p</i> -value |
|--------------------------------|-----|----------|----------|------|-----------------|-----------------|
| Boreal Taiga Plains            | 6   | AB       | -0.56    | 0.44 | -1.28           | 0.20            |
|                                |     | BC       | -0.27    | 1.63 | -0.17           | 0.87            |
|                                |     | MB       | -0.28    | 0.87 | -0.32           | 0.75            |
|                                |     | NWT      | -0.67    | 1.00 | -0.68           | 0.50            |
|                                |     | SK       | -0.81    | 0.64 | -1.27           | 0.21            |
| Boreal Hardwood Transition     | 12  | MB       | -0.14    | 1.41 | -0.10           | 0.92            |
|                                |     | ON       | -0.03    | 0.46 | -0.06           | 0.95            |
|                                |     | PQ       | -0.46    | 0.56 | -0.82           | 0.41            |
| Boreal Softwood Shield         | 8   | MB       | -1.63    | 1.03 | -1.59           | 0.11            |
|                                |     | NL       | -0.06    | 0.83 | -0.08           | 0.94            |
|                                |     | ON       | -0.89    | 0.55 | -1.63           | 0.10            |
|                                |     | PQ       | 0.35     | 0.62 | 0.56            | 0.57            |
|                                |     | SK       | 1.95     | 1.10 | 1.77            | 0.08            |
| Taiga Shield and Hudson Plains | 7   | MB       | 0.00     | 3.98 | 0.00            | 1.00            |
|                                |     | NL       | -0.27    | 1.78 | -0.15           | 0.88            |
|                                |     | NWT      | -1.49    | 2.82 | -0.53           | 0.60            |
|                                |     | PQ       | 13.42    | 2.30 | 5.84            | <0.001          |

Table A1.3 Results of GAMM for bias in measurements of anthropogenic disturbance based on GIS analysis of 20 buffer distances between 25 – 1500m along 455 BBS routes (n=9100).

| Ecozone                        | BCR | Province | Estimate | SE    | <i>t</i> -value | <i>p</i> -value |
|--------------------------------|-----|----------|----------|-------|-----------------|-----------------|
| Boreal Taiga Plains            | 6   | AB       | 9.89     | 1.41  | 7.01            | <0.001          |
|                                |     | BC       | 12.88    | 5.25  | 2.46            | 0.01            |
|                                |     | MB       | 3.77     | 2.80  | 1.34            | 0.18            |
|                                |     | NWT      | 0.98     | 3.21  | 0.30            | 0.76            |
|                                |     | SK       | 1.69     | 2.06  | 0.82            | 0.41            |
| Boreal Hardwood Transition     | 12  | MB       | 21.17    | 4.54  | 4.66            | <0.001          |
|                                |     | ON       | 3.25     | 1.48  | 2.19            | 0.03            |
|                                |     | PQ       | -0.46    | 1.80  | -0.25           | 0.80            |
| Boreal Softwood Shield         | 8   | MB       | 3.48     | 3.32  | 1.05            | 0.29            |
|                                |     | NL       | 0.98     | 2.68  | 0.37            | 0.71            |
|                                |     | ON       | 8.69     | 1.76  | 4.92            | <0.001          |
|                                |     | PQ       | 1.35     | 2.01  | 0.67            | 0.50            |
|                                |     | SK       | 2.64     | 3.56  | 0.74            | 0.46            |
| Taiga Shield and Hudson Plains | 7   | MB       | 6.62     | 12.85 | 0.52            | 0.61            |
|                                |     | NL       | 0.40     | 5.75  | 0.07            | 0.94            |
|                                |     | NWT      | 0.17     | 9.08  | 0.02            | 0.98            |
|                                |     | PQ       | 1.05     | 7.42  | 0.14            | 0.89            |