



Landsat-based Monitoring of Landscape Dynamics at Voyageurs National Park

1995–2013

Natural Resource Data Series NPS/GLKN/NRDS—2017/1089



ON THE COVER

An abandoned beaver pond inside Voyageurs National Park.
(NPS/AL KIRSCHBAUM)

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Abstract

Landscape disturbances such as forest harvest, blowdowns, fire, and development activities create patches on the landscape that modify the structure and function of ecosystems and watersheds. Understanding the timing, location, size and intensity of these disturbances can assist resource managers while making decisions regarding management options. In an effort to provide information regarding these metrics, the Great Lakes Inventory and Monitoring Network implemented a long-term monitoring project to quantify landscape dynamics inside and surrounding Voyageurs National Park using an automated satellite-based change detection program called LandTrendr (Landsat-based detection of trends in disturbance and recovery). This is the second report for Voyageurs and varies slightly from the original report published in 2009 in terms of analysis area and the time period analyzed. We have doubled the analysis area outside the park and have increased the number of years analyzed from 2002–2007 (6 years) to 1995–2013 (19 years). Inside the park, disturbances due to beaver affected the largest percent of land (0.44%, 0.02% per yr), followed closely by forest pathogen (0.41%, 0.02% per year) and fire (0.36%, 0.02% per yr). Lands adjacent the park experienced far greater levels of disturbance, with forest harvest accounting for 90% of the land disturbed outside the park (13.63%, 0.71% per yr). The second most prevalent disturbance agent outside the park was forest pathogen with only 0.66% (0.03% per yr) of the land disturbed outside the park during the 19-year analysis period. Continual long-term monitoring of this analysis area will contribute to our understanding of how these disturbances can and will affect the movement of wildlife through corridors through the park.

Introduction

We report on disturbances for Voyageurs National Park (VOYA) and the surrounding area using change detection methodology described in the Great Lakes Inventory and Monitoring Network (GLKN) Landscape Dynamics monitoring protocol (Kennedy et al. 2010a). Here we summarize disturbances that occurred between 1995 and 2013. This builds on previous work disturbance work performed at VOYA in 2010 (Kirschbaum and Gafvert 2010b). Specifically, we doubled the area monitored and instead of using a simple buffer around the park to define the analysis area, we used watershed boundaries as defined by the National Hydrography Dataset and the Ontario Land Information Office.

Methods

Study Area

The analysis was conducted inside and adjacent to Voyageurs National Park (VOYA). The analysis area extended into Ontario, Canada, and south into Koochiching and St. Louis counties in Minnesota (Figure 1). In total 419,538 ha of land was monitored of which 53,036 ha was land inside VOYA. Included in the analysis area are nine U.S. watersheds as defined by level 10 delineations of the National Hydrography Dataset's Hydrologic Unit Code (HUC) (nhd.usgs.gov) and three additional watersheds in Canada as defined by the quaternary level of the Ontario watershed delineation (ontario.ca/page/land-information-ontario) (Figure 2). Landcover within the analysis was dominated by forest, as classified in the U.S. by the 2006 National Land Cover Database (NLCD) (Fry et al. 2011) and in Canada as classified by the Canada-wide Earth Observation for Sustainable Development of Forests (EOSD) (Wulder et al. 2003) (Figure 3).

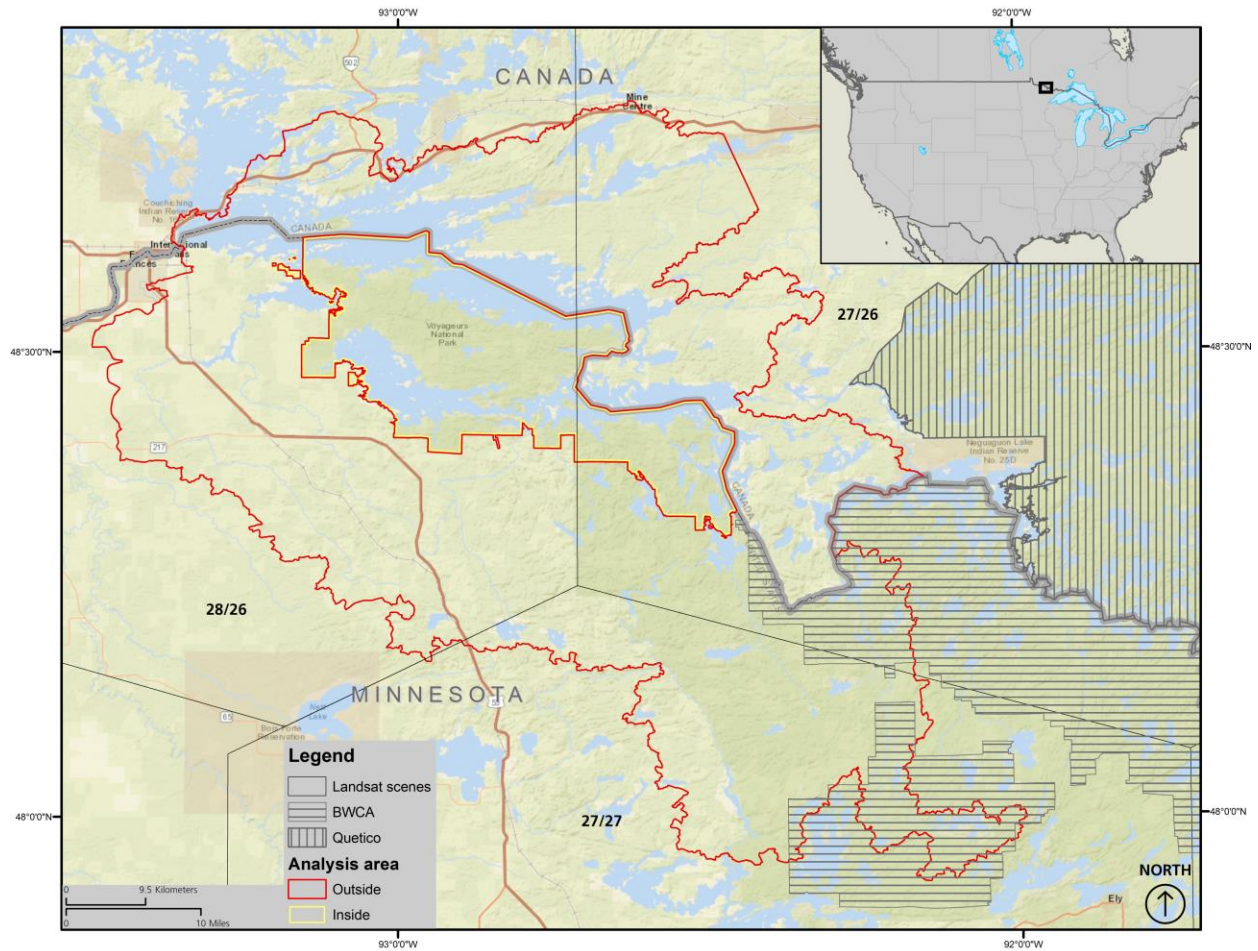


Figure 1. Analysis area for monitoring landscape dynamics in and around Voyageurs National Park. Red outline indicates overall extent of analysis area, yellow outline indicates park boundary, and black outline indicates the three Landsat scenes downloaded and processed for this analysis.

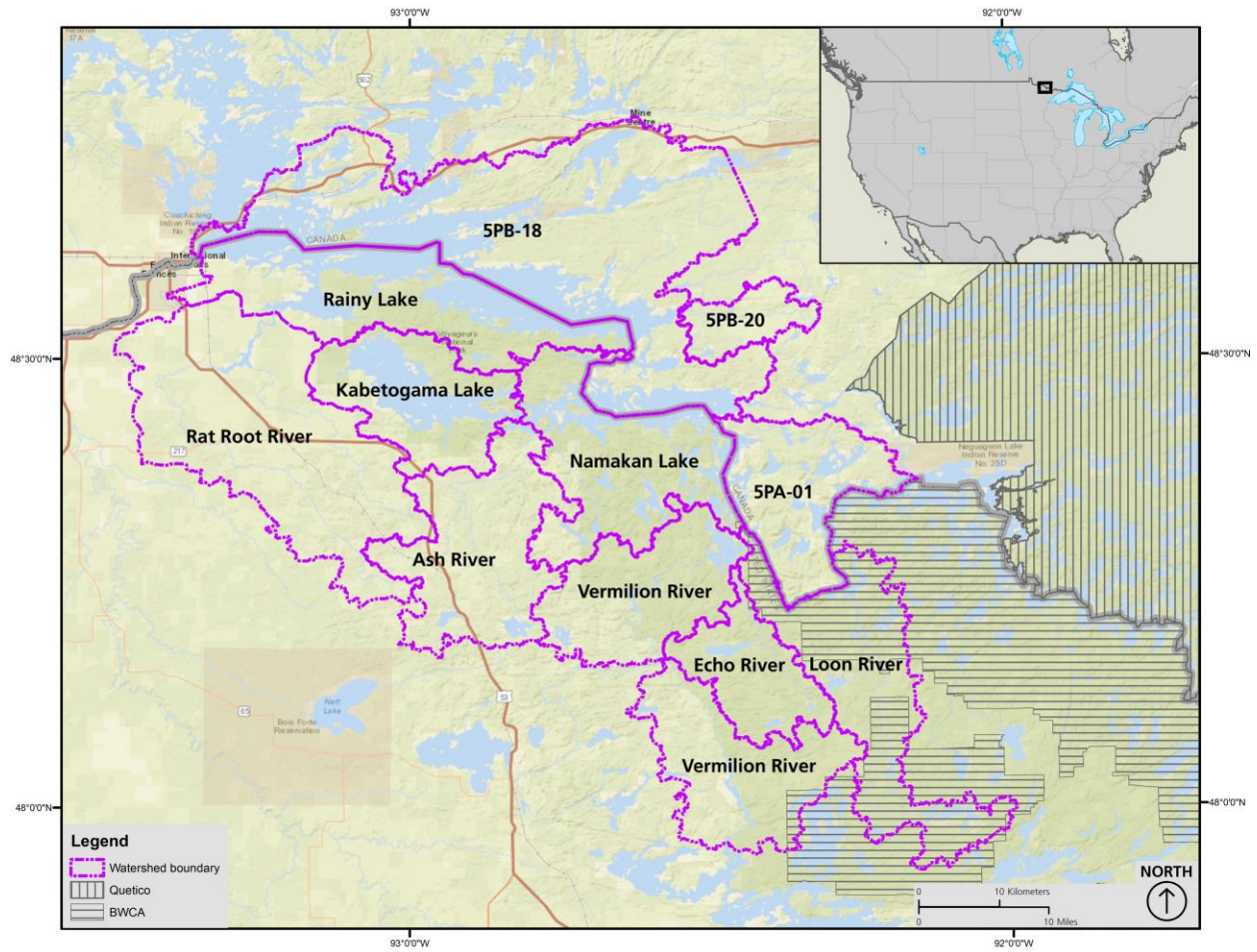


Figure 2. Watersheds (purple outlines) included in this analysis, as defined by level 10 Hydrologic Unit Codes (HUCs) in the U.S. and level 4 watersheds in Ontario.

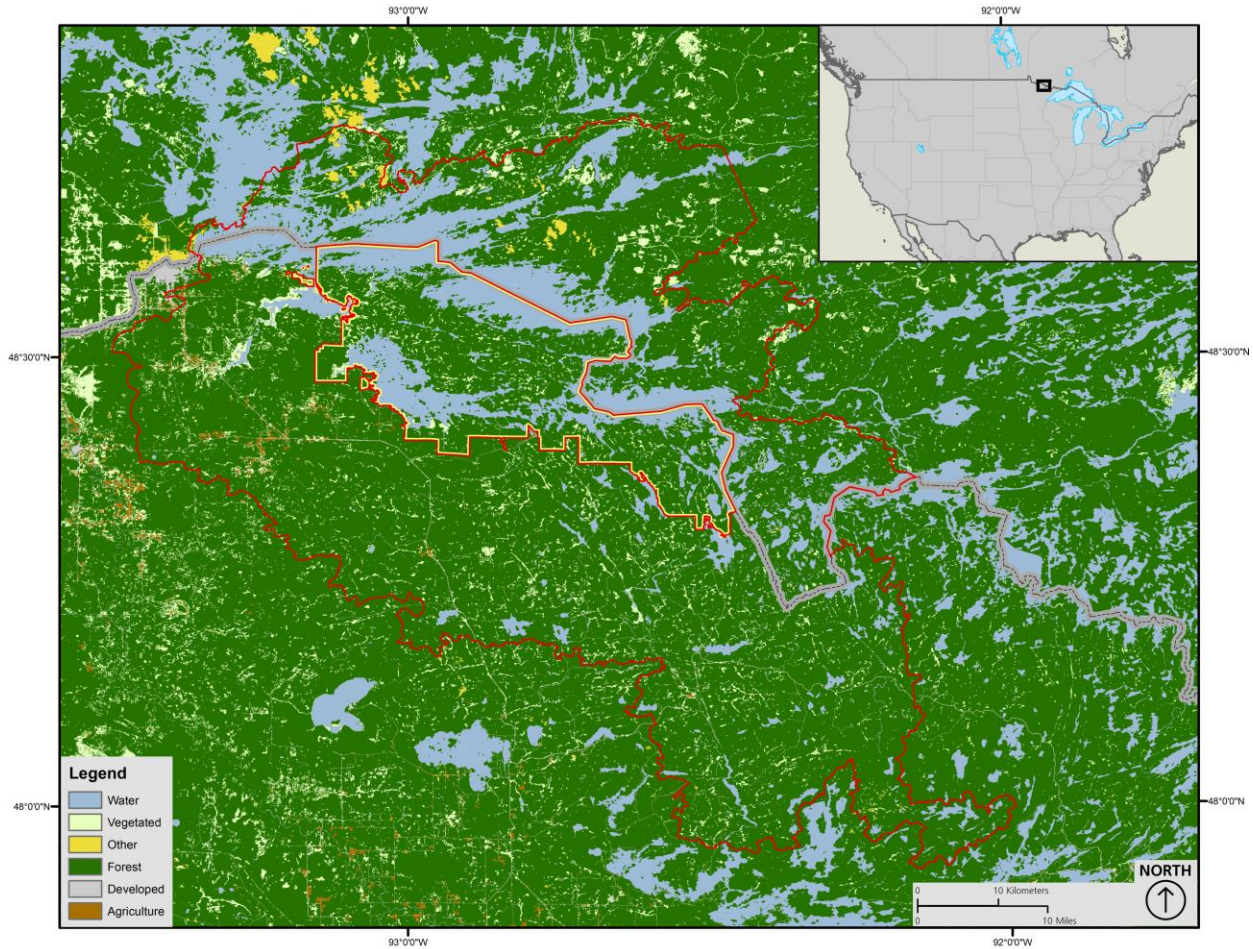


Figure 3. Aggregated vegetation classes in the analysis area, as mapped by the National Land Cover Database (U.S.) and Earth Observation for Sustainable Development of Forests (Ontario).

Ownership

Multiple sources of land ownership exist for this area with the level of detail provided depending on the source of data. In this report we have chosen two different categories. The first category is derived from the ‘Owner Name’ field in the USGS GAP analysis program’s Protected Areas Database (PADUS) version 1.4 (<https://gapanalysis.usgs.gov/padus/>), hereafter referred to as Ownership Category 1 (U. S. Geological Survey 2016). Because this database was developed for the U.S., it lacks information regarding lands in Canada. For this reason we have simply labeled ownership on all Canadian lands as ‘Unknown’, matching the classification given to some land areas in Minnesota (Figure 4). Within the study area, just over 40% of the land is classified as ‘Other State Land’, followed closely by the ‘Unknown’ category (32%) (Table 1).

Table 1. Category 1 ownership groupings as defined in the Protected Areas Database (PADUS). Ownership was limited to those with more than 1,000 ha within the analysis area. Area reported does not include water.

Ownership	Hectares	Percent land
Other State Land	170902.73	40.74
Forest Service (USFS)	62301.72	14.85
National Park Service (NPS)	50682.3	12.08
Unknown	135133.02	32.22

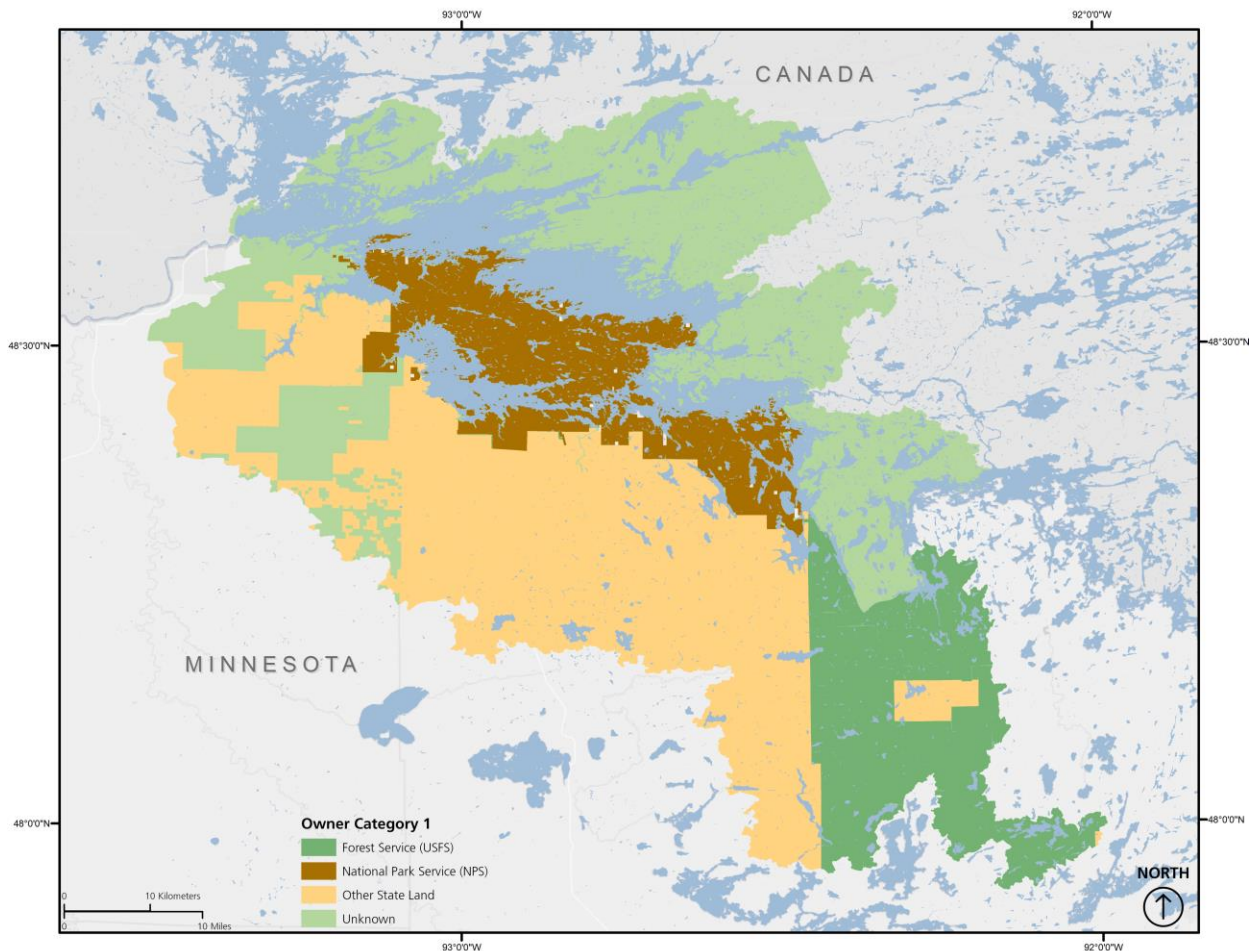


Figure 4. Ownership category 1 in the analysis area. Ownership data from the U.S. Geological Survey, Gap Analysis Program's Protected Areas Database, version 1.4.

To establish a more detailed view of ownership within the analysis area we downloaded Minnesota's Gap Analysis Program (GAP) data (www.mngeo.state.mn.us) and Ontario Land Information Office (LIO; www.ontario.ca/page/land-information-ontario) ownership data (Figure 5). The largest percent of lands were federally-owned (33%) followed by state and crown-owned lands, 24% and 22% respectively (Table 2). The crown-owned lands are exclusively located in Ontario and represent lands

owned by federal or provincial (Ontario) governments. These lands in Ontario are often leased to private industrial companies for timber management and wood extraction.

Table 2. Category 2 ownership groupings as defined in the Minnesota Gap Analysis Program and Ontario Land Information Office ownership datasets. Ownership was limited to those with more than 1,000 ha within the analysis area. Area reported does not include water.

Ownership	Hectares	Percent land
Private Industrial	23174.92	5.52
State	102329.40	24.40
Federal	142156.57	33.89
Private	48449.73	11.55
Crown land	94439.59	22.51
Indian reserve	2592.43	0.62
Patent land	3724.82	0.89

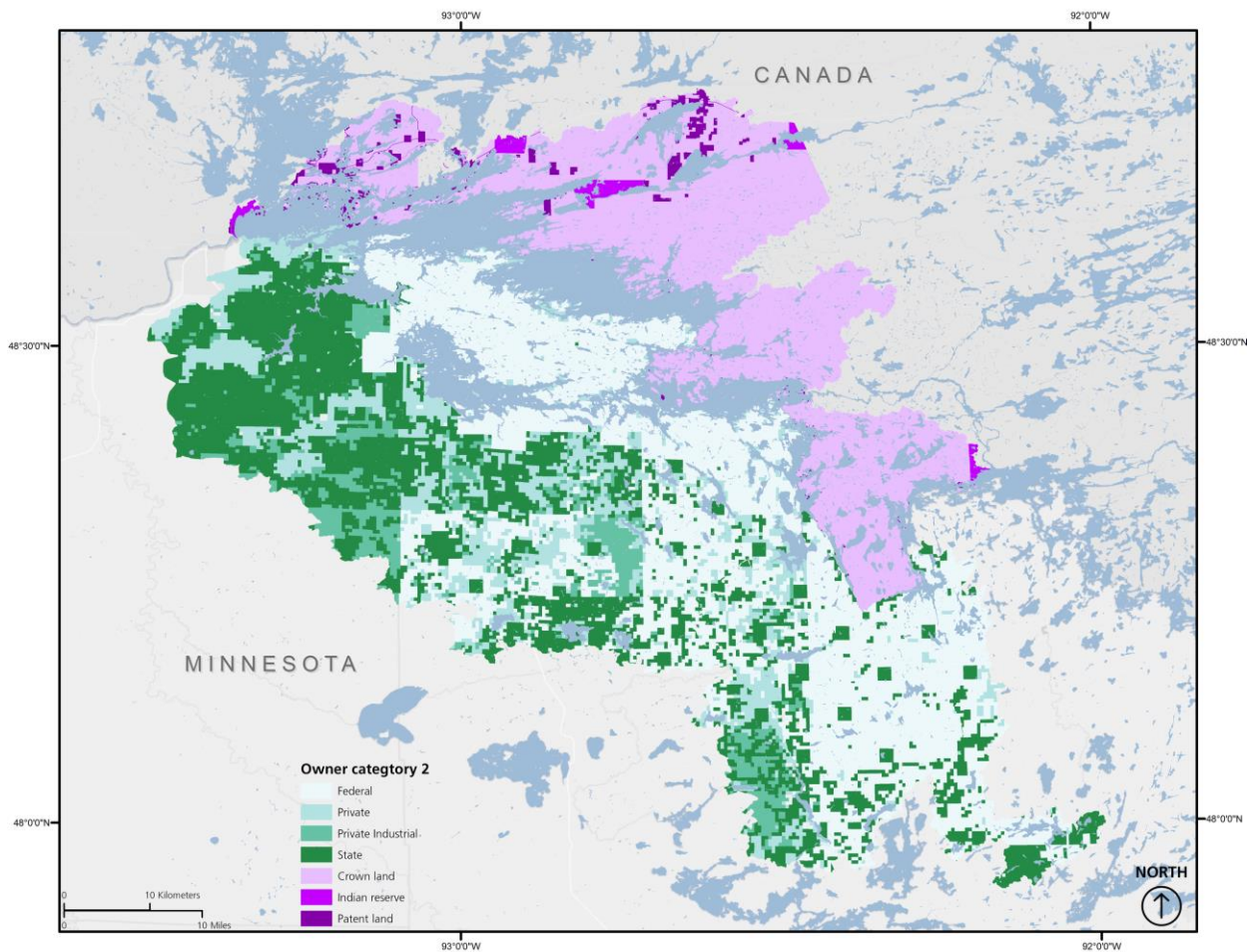


Figure 5. Ownership category 2 present in the analysis area. Ownership data from the Minnesota Gap Analysis Program and Ontario Land Information Office.

Image analysis

Although the entire Landsat archive (1984–2014) was used for disturbance detection at each park, we limited validation of disturbances to years between 1995 and 2013 and are only reporting summary data for this time span. We utilized 266 Level 1T Landsat Thematic Mapper (TM) and Enhanced Thematic Mapper + (ETM) images from 3 scenes (27/26, 27/27, and 28/26) from the United States Geological Survey (USGS) Global Visualization Viewer archive (glovis.usgs.gov). Images selected were from the mid-summer season (1 July – 31 August) (Figure 6).

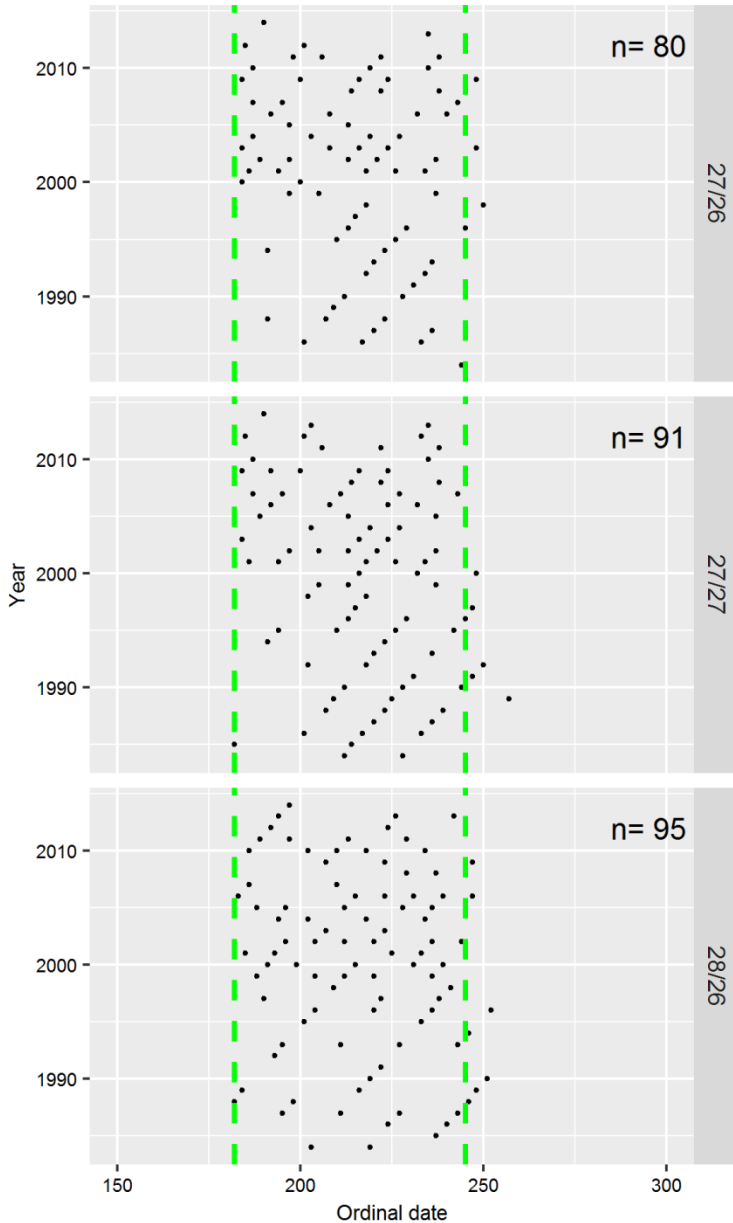


Figure 6. Each dot represents one Landsat image downloaded and processed for analysis for the three Landsat scenes (27/26, 27/27, and 28/26) intersecting the analysis area. Green dotted lines represent the time period between 1 July and 31 August (mid-summer season).

Disturbance detection methodology

We used a set of processing and analysis steps collectively known as LandTrendr (Kennedy et al. 2010a, Kennedy et al. 2010b, Kennedy et al. 2012). Using statistical fitting algorithms, LandTrendr works on a per pixel (30-m resolution) basis to describe a time series of spectral reflectance values, capturing the shape of the time series curve, while smoothing undesired random noise, such as phenological condition or sun angle at the time of image acquisition. LandTrendr identifies periods of spectral stability (no change) and instability (change). For this analysis we only report on changes, where and when they occur.

To minimize effects of phenological variation we selected Landsat images between July and August of each year (1984–2014). We preprocessed Landsat images following standard procedures for atmospheric correction and cloud/shadow screening. We atmospherically corrected images using the Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) (Vermote et al. 1997, Masek et al. 2006). Clouds, associated shadows, and missing pixel data were masked using the F-mask algorithm developed by Zhu and Woodcock (2012). These processed images served as the base on which LandTrendr algorithms were run. We used the Normalized Burn Ratio (NBR) (Deering 1989, Key and Benson 2006) and band 5 (short-wave infrared) with LandTrendr because it has been shown that band 5 is more effective at detecting short duration (<2 years), abrupt changes such as forest harvest clearcuts (Schroeder et al. 2011), while NBR is more sensitive to subtle disturbances such as partial forest harvests (Kennedy et al. 2012).

Patch definition

To delineate patches, adjacent pixels experiencing disturbances in the same year were assumed to have experienced the same event and were grouped together using an 8-neighbor adjacency rule. Patches with 10 or fewer pixels (ca. 1 ha, 2.5 ac) were removed from the dataset to avoid small, often unverifiable disturbance events. This size was small enough to capture most forest harvests in addition to other disturbance agents such as beavers, some development activities, and blowdowns. We merged the outputs from NBR and band 5 using a patch agglomeration script that evaluated each individual patch from the NBR output and determined if any part of a patch in the band 5 output overlapped geographically and occurred in the same year. If so, the pixels in the two patches were merged into one disturbance patch.

Assessment of LandTrendr segmentation

At 590 individual plots distributed randomly across all lands in the study area, we assessed the accuracy of the LandTrendr pixel-resolution change detection using TimeSync (Cohen et al. 2010). We chose to use TimeSync because Cohen et al. (2010) showed that interpretations made using this technique strongly agree with independent reference data and are consistent across years and ownerships. We labeled each plot as stable or disturbed and for each disturbance assigned a confidence level (high, medium, low) and change agent (agriculture, beaver, development, fire, forest harvest, or insect).

To assess the accuracy of LandTrendr algorithms, the 3-by-3-pixel plot was intersected with the disturbance polygons, and a match was counted if the polygon and interpreter agreed on the disturbance within one year of each other.

Interpreter-based validation and attribution of change agents

We chose to validate every (census) disturbance polygon that was generated by LandTrendr to remove commission errors (false positives) and at the same time determine the change agent. If a polygon spanned boundaries (inside/outside park), we attributed the polygon with the majority of the polygon represented. Validation of possible disturbances followed details given in Kirschbaum and Gafvert (2010a) and are briefly summarized here. After disturbance polygons were created by LandTrendr, the next step was to validate whether a change occurred in the polygon and document the agent of change (Table 3). Although we are able to confidently distinguish up to ten change agents during the validation process, for this report we have grouped these ten into six for ease of reporting (Table 4). To determine whether changes had occurred we used high resolution (≤ 1 m) imagery (air photo and satellite). The majority of the imagery used was from the National Agriculture Imagery Program (NAIP) with a pixel resolution of 1 m. When validating disturbances in Canada where NAIP imagery was not available, we relied on satellite imagery from various satellites such as WorldView-1, WorldView-2, Quickbird, and GeoEye-1 with pixel resolutions ranging from 0.3 m to 1 m. In addition to imagery, we also used spatial information from the U.S. Forest Service Insect and Disease surveys (<http://foresthealth.fs.usda.gov/portal/Flex/IDS>). Contextual information such as forest type, ownership, and drainage patterns were important for determining the disturbance agent and land cover classes. Lastly, we also viewed the entire Landsat image stack (1985–2014) for each prospective disturbance and a graph of the reflectance values through time (1985–2014) of said disturbance. By viewing high resolution imagery, ancillary data, Landsat imagery, and reflectance values, our interpretation eliminated false positives. In a GIS environment utilizing high resolution imagery, ancillary datasets, and the Landsat imagery itself, we validated a total of 18,805 LandTrendr-delineated disturbance polygons, removing all false positive (commission) polygons from the summary analysis. Since the analysis area contains a significant amount of water, disturbance area was computed as percentage of land area, excluding bodies of water as delineated by the 2006 National Land Cover Database (Fry et al. 2011).

Our work corroborated what has been shown in past studies (Cohen et al. 2010, Antonova et al. 2011), that on-screen validation of polygons with the aid of high spatial resolution imagery, in addition to high temporal resolution (yearly) Landsat imagery and Landsat reflectance values is as good as any ancillary or ground-based validation method. The most obvious disturbances, such as forest clearcuts and development, are the two main disturbances that can be field-validated. However, they are also the disturbances most easily validated with high resolution imagery and/or Landsat imagery. More subtle or older disturbances are largely not possible to validate in the field due to logistical constraints (too remote to access) or because the evidence (e.g., insect/disease, low level forest harvests) has been masked by time (Cohen et al. 2010, Antonova et al. 2011).

Table 3. Disturbance agents identified during manual validation in a GIS environment and how interpreters identify each.

Disturbance agent	Description and means of identification
Agriculture	Conversion of a non-agricultural land use/land cover type (e.g., forest, wetland) to an agricultural land use (row crops, pasture, hay).
Beaver	Landscape changes caused by beaver dams. Identified by flooding (i.e., presence of water) of wooded wetlands and the subsequent killing of trees.
Blowdown	The uprooting and tipping over of trees by wind. Blown down trees are evident in high resolution airphotos and are usually oriented in the direction of the wind event.
Development	Permanent conversion of vegetated surface to non-vegetated surface such as mines, paved roads, parking lots, buildings, and houses.
Fire	Detection is limited to instances where there is mortality in the overstory. Thus, areas in which fires only burn the understory are not delineated.
Forest harvest (light)	Most easily identified by the proximal presence of pervious roads and very linear features outlining the extent of the disturbance. This category of forest harvest has 60%–90% of the overstory remaining.
Forest harvest (moderate)	Same contextual information as forest harvest (light) however, this harvest category has 30%–59% of the overstory remaining.
Forest harvest (heavy)	Same contextual information as forest harvest (light) however, this harvest category has 0%–29% of the overstory remaining.
Insect/disease (defoliation)	Disturbances in the overstory due to insects or diseases that result in tree defoliation.
Insect/disease (mortality)	Disturbances in the overstory due to insects or diseases that result in tree mortality.
Other	This category is used when the interpreter is unable to determine the causal agent.

Table 4. Simplified disturbance agent groupings used in this report with the agents present in each group.

Disturbance agent grouping	Disturbance agents present in group
Development	Agriculture, development
Beaver	Beaver
Blowdown	Blowdown
Fire	Fire
Forest harvest	Forest harvest categories light, moderate and heavy
Forest pathogen	Insect/disease defoliation and mortality
Other	Other

Results

Assessment of LandTrendr segmentation

Based on point-level comparison with human interpretation, the LandTrendr segmentation had commission and omission rates of 21.02% and 4.57%, respectively (Table 5). On just under half (288) of the plots, the human interpreter and LandTrendr agreed that no disturbance occurred (disturbance agent 'None' in Table 6). Lastly, there were 151 plots (25.59%) that the interpreter and LandTrendr agreed there was a disturbance (Table 6).

Table 5. Counts and percent of sample where the interpreter and LandTrendr did not agree on whether a disturbance occurred. Commission meant that LandTrendr delineated a disturbance when the interpreter claimed there was no disturbance. Omission meant that LandTrendr did not delineate a disturbance when the interpreter claimed there was a disturbance.

Error type	Count	Percent
Commission	124	21.02
Omission	27	4.57
Totals	151	25.29

Table 6. Counts and percent of sample where the interpreter and LandTrendr agreed that a disturbance occurred, or in the case of 'None', that both the interpreter and LandTrendr agreed no disturbance had occurred. Any pixel within a 3- x 3-pixel window with agreement is considered a match.

Disturbance agent	Count	Percent
Beaver	10	1.70
Fire	1	0.17
Forest harvest	136	23.05
Forest pathogen	4	0.68
None	288	48.81
Totals	439	74.41

Disturbance agent summaries

Maps of disturbances

Here we present maps that show the location of disturbances in the analysis area by disturbance agent (Figure 7) and by year (Figure 8). Because the patches of some disturbance agents are small, we have exaggerated the polygons for beaver, blowdown, fire, and development. The most widespread and ubiquitous change agent was forest harvest, found nearly everywhere outside the park (Figure 7) and across all years (Figure 8), but not detected in the easternmost extent of the analysis area and in the north central region of the analysis area. Large pockets of blowdown were detected near and in the

Boundary Waters Canoe Area (BWCA) in 1999 (Figure 7). Inside the park, disturbances due to beaver were the most common, spread across the park (Figure 7). Another spatially widespread disturbance agent found inside the park was blowdown, spread across the park in 22 patches (Figure 7) largely occurring in years 2002 and 2006 (Figure 8).

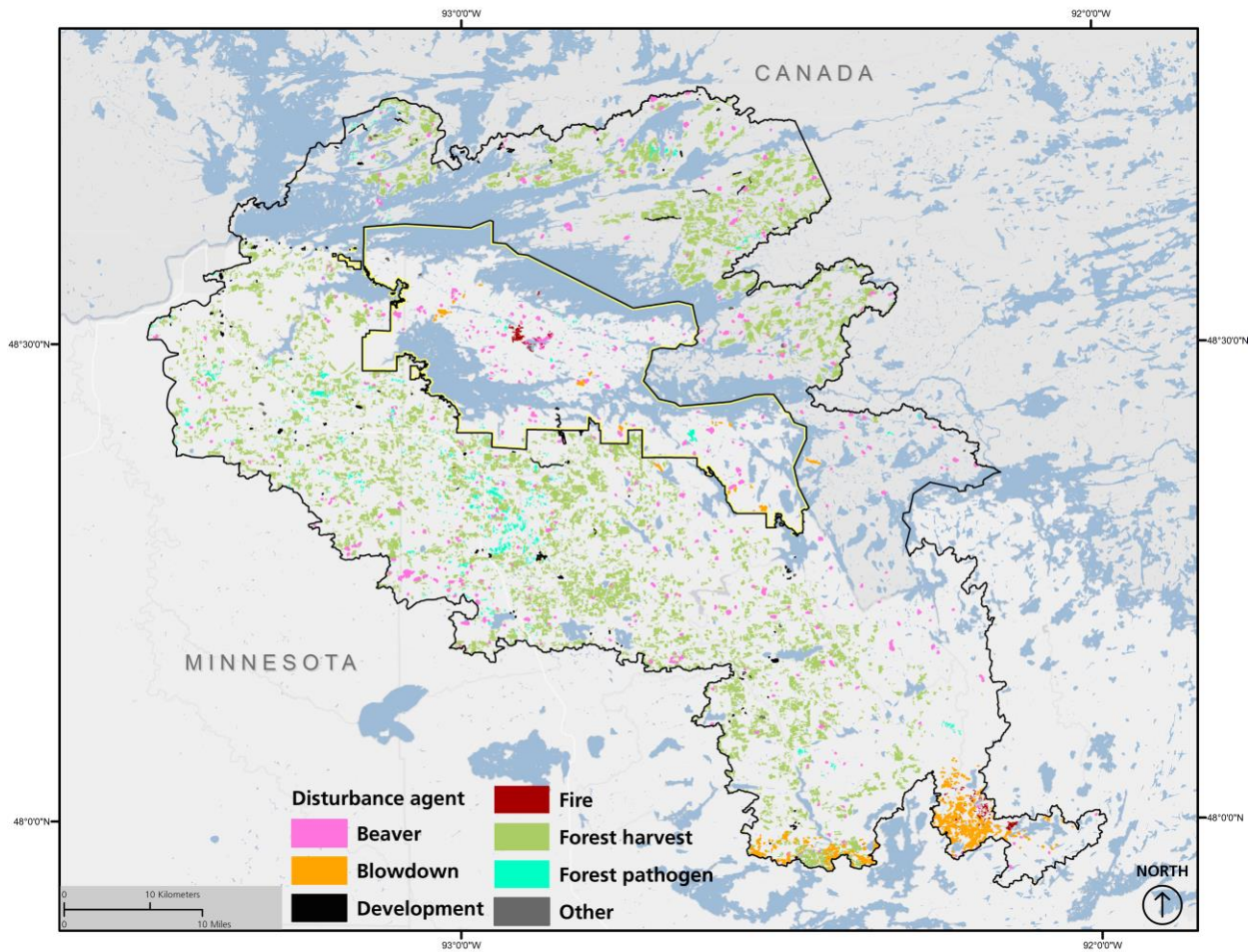


Figure 7. Spatial extent of disturbances by disturbance agent.

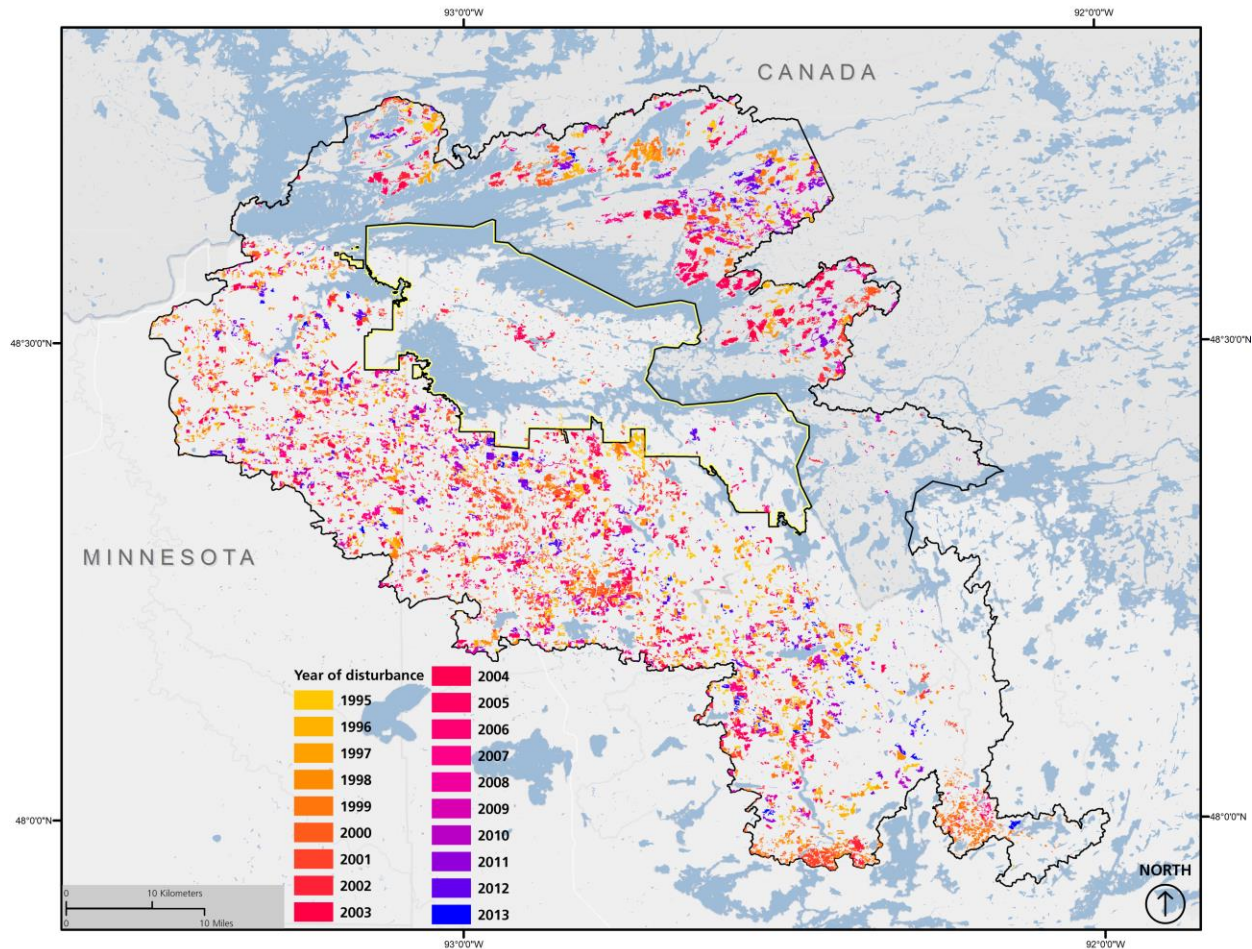


Figure 8. Disturbance patch locations identified by year of onset.

Inside vs outside park

All data used to generate these graphs can be found in tabular form in Appendix A. The appendix tables include additional data such as counts and area disturbed.

Inside the park boundary disturbances due to beaver disturbed the largest percent of land (0.43%) over the time period, followed closely by forest pathogen (0.41%) and fire (0.36%) (Figure 9). Beaver was also the most consistent agent of change, detected in each year except 2012. Disturbance due to forest pathogens (defoliation) were detected in only three years and fire was present in four years (Figure 9). Lastly, blowdown was found in five years, with the largest amount occurring in 2002 (Figure 9).

Outside the park, disturbance due to forest harvest dominated, averaging 0.7% of land per year over the 19-year analysis period, for a total of 13.62% of land disturbed (Figure 9). Forest harvest declined beginning in 2006 to an average of 0.5% per year (Figure 9). The next most prevalent agent of change was due to forest pathogen which disturbed a total of 0.66% of land, largely in year 2000 (Figure 9). Blowdown was also present outside the park with the majority of it occurring in 1999, in which it disturbed 0.47% of the land (Figure 9). Lastly, disturbance due to beaver was present each

year of the analysis period, although the overall percent of land disturbed was low (0.26% total land disturbed).

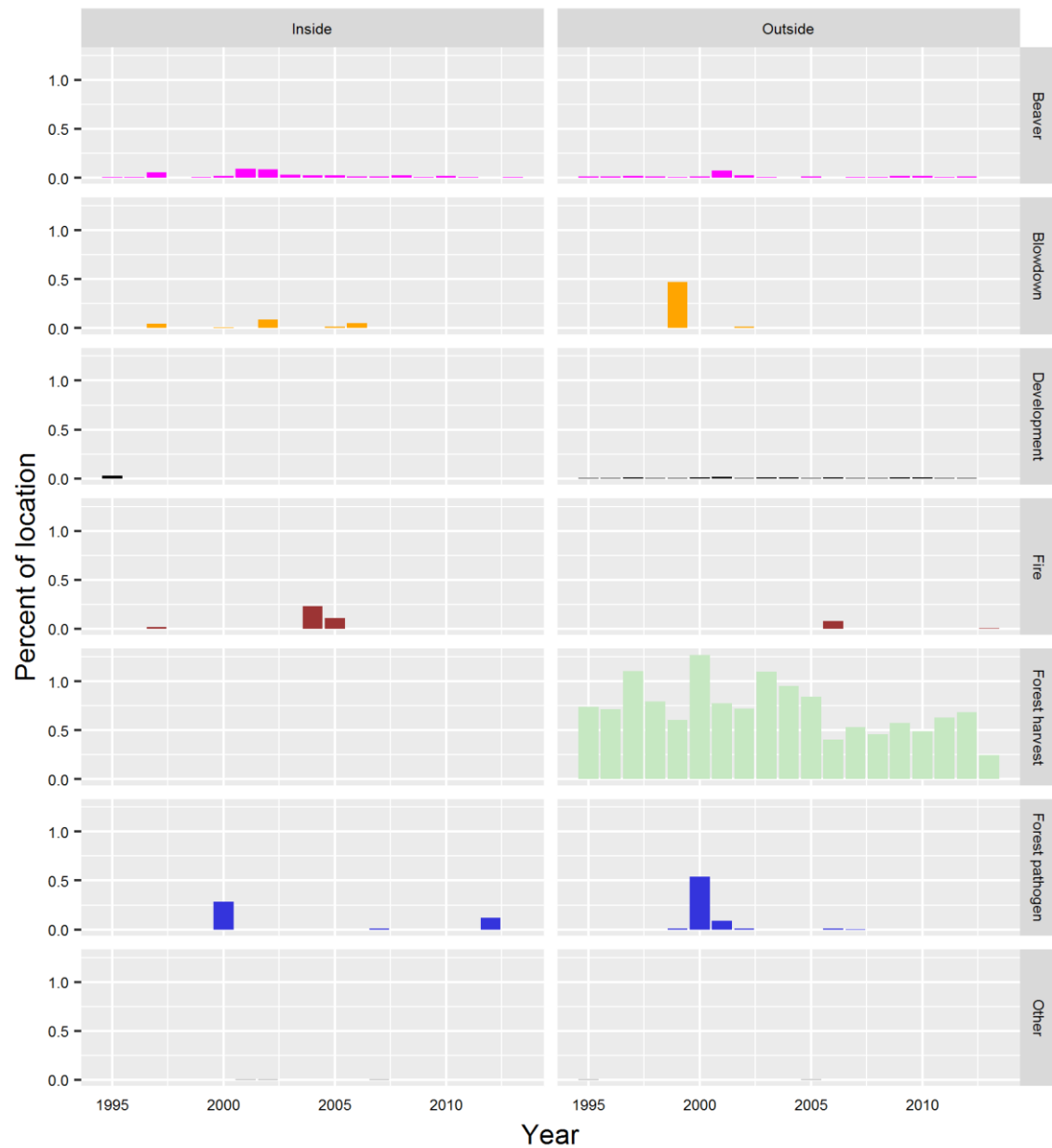


Figure 9. Percent of land disturbed inside and outside the park, by disturbance agent and year.

Ownership category 1

When viewing the four ownership types with more than 1,000 ha of land, 'Other State Land' had the highest disturbance rate, with nearly 18% of its land disturbed during the time period, 92% of the land disturbed was due to forest harvest (Figure 10). The rate of forest harvest dropped sharply in 2006, and has stayed around 0.5% since then (Figure 10). Other agents present, in decreasing amounts, were forest pathogen, beaver, blowdown, and development. The 'Unknown' ownership type had second highest disturbance rate, with 14.88% of the land disturbed (Figure 10). As a side note, our experience is that the unknown category is typically, but not exclusively, private land. As with state land, forest harvest accounted for over 90% of the land disturbed in this category, followed by smaller amounts affected by forest pathogen, beaver, and development. Forest harvest disturbed an average of 0.73% of land each year with harvest rates being quite stable through time, with a low year in 2006 and 2013 (Figure 10). The two ownership types with the lowest amount of land disturbed was the U.S. Forest Service and National Park Service, with 8.25% and 1.53% of their land disturbed, respectively. Of ownership types that allow forest harvests, the Forest Service had less than half the amount as other ownership types, with a total of 5.06% disturbed over 19 years (Figure 10). This included a near absence of harvests from 2003–2007 (Figure 10). One major event occurring on Forest Service lands was the 1999 blowdown event that affected 2.38% (1481 ha) of the land, and the only year blowdown was detected (Figure 10).

Owner category 2

There are seven category-two ownership classes, with crown land, Indian reserve, and patent land being found only in Ontario. The remaining four classes (federal, private, private industrial, and state) were present only in Minnesota. Of the Canadian ownerships, crown land had the highest percent of land disturbed (15%) followed by patent land (5.62%) and Indian reserve (2.10%) (Figure 11). Within crown land, forest harvests accounted for 94% of the land disturbed, with the remainder being distributed among beaver, forest pathogen, development, and blowdown (Figure 11).

Of the ownership types in Minnesota, private industrial had the highest disturbance rate, with just over 25%—more than 1% per year—of its land disturbed during the analysis period (Figure 11). Nearly all of the disturbance was due to forest harvests, which accounted for 94% of the total disturbance amount. Forest harvests on private industrial land also fluctuated quite widely from year to year. The next two highest disturbance rates were on state and private lands—17.01% and 16.84%, respectively, over the analysis period. Disturbance due to forest harvests dominated in both ownership types. Forest harvest on state lands has shown a steady decline since 2005.

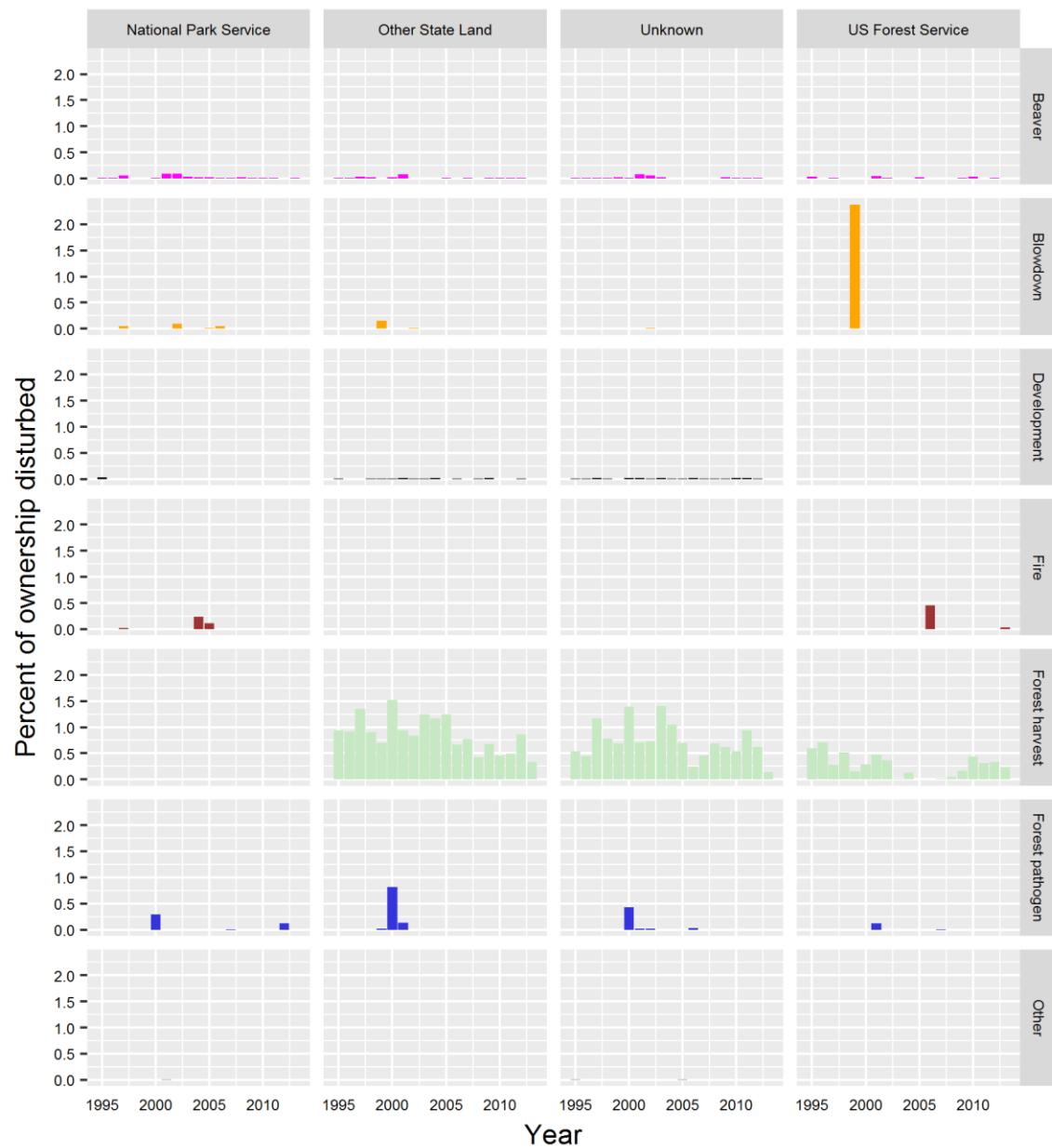


Figure 10. Percent of land disturbed within ownership category 1, by disturbance agent and year.

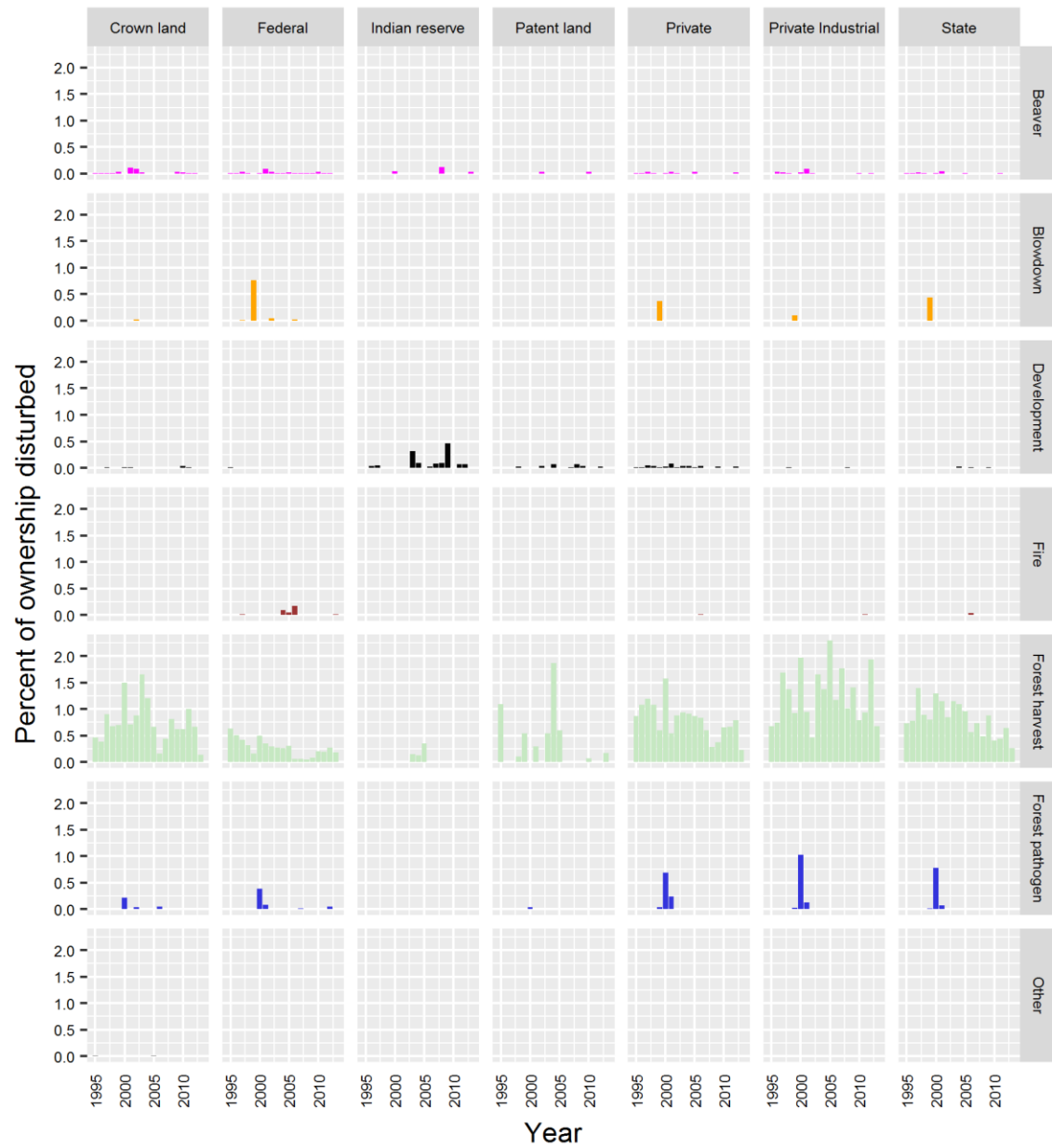


Figure 11. Percent of land disturbed within ownership category 2, by disturbance agent and year.

Watershed

There were 11 watersheds located within the study area, three of which were located in Ontario (5PB-18, 5PB-20, and 5PA-01) and the remaining eight located in Minnesota (see Figure 2). Of the Ontario watersheds, 5PB-20 had the highest disturbance rates at 21.42% of the land disturbed during the analysis period (Figure 12). Forest harvest was the major disturbance agent present, and the amount disturbed was quite variable from year to year. Part of the variability is likely due to the smaller area of the watershed (see Figure 2). The Ontario watershed named 5PB-18 had the second most land disturbed of the Canadian watersheds, at 17.65% during the analysis period (Figure 12). Lastly, 5PA-01 had very little land disturbed during the analysis period, a mere 0.80% total (0.04%/yr), which is almost half as much disturbance as was present inside VOYA.

Of the Minnesota watersheds, Ash River had the highest disturbance amount (23.03%), followed by Vermilion River (16.22%), Echo River (15.83%), and the Rat Root River (15.68%) (Figure 12). The remaining watersheds had totals below 10% (Figure 12). Within the Ash River watershed, disturbance due to forest harvest dominated, but has steadily decreased since 2005 (Figure 12). The only other watershed on the Minnesota side that has experienced a similar trend was the Vermilion River watershed which is located just east of the Ash River watershed. The smallest watershed on the Minnesota side, Echo River, experienced a steady increase of disturbance due to forest harvest since a low in 2006 (Figure 12). The watershed with the lowest disturbance rate was Loon River (5.16%), which also contains the Boundary Waters Canoe Area (BWCA) (Figures 2 and 12).

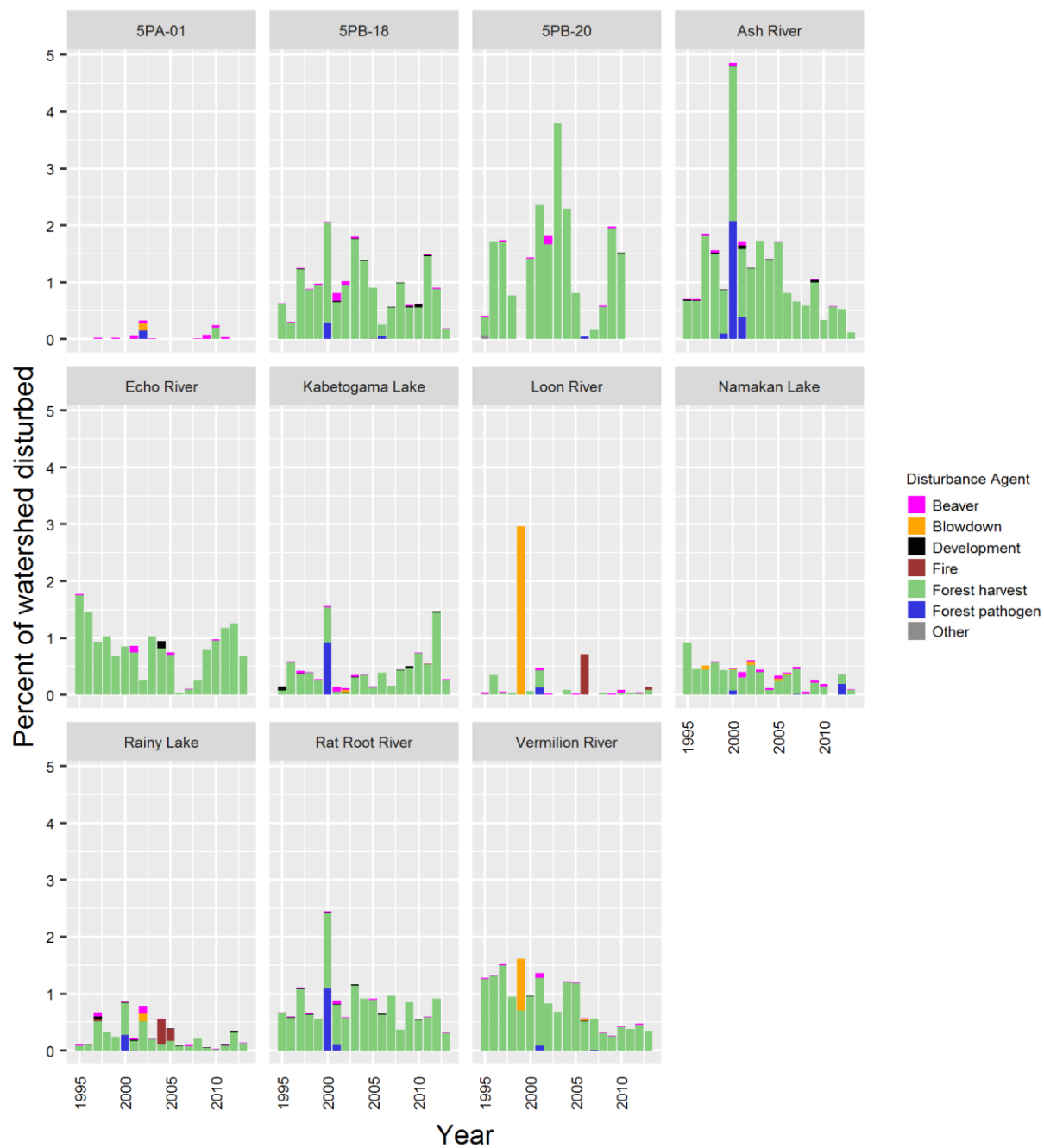


Figure 12. Percent of land disturbed within each watershed, by disturbance agent and year.

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Table A1. Area, count of disturbances per 100,000 ha, count, and percent land disturbed inside VOYA during the analysis period. To enable equal comparison among different land areas counts were calculated as the number of disturbances per 100,000 ha.

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
1995	Beaver	4.86	0.01	3.77	2
1995	Blowdown	0.00	0.00	0.00	0
1995	Development	13.48	0.03	7.54	4
1995	Fire	0.00	0.00	.00	0
1995	Forest harvest	0.00	0.00	0.00	0
1995	Forest pathogen	0.00	0.00	0.00	0
1995	Other	0.00	0.00	0.00	0
1996	Beaver	3.44	0.01	5.66	3
1996	Blowdown	0.00	0.00	0.00	0
1996	Development	0.00	0.00	0.00	0
1996	Fire	0.00	0.00	0.00	0
1996	Forest harvest	0.00	0.00	0.00	0
1996	Forest pathogen	0.00	0.00	0.00	0
1996	Other	0.00	0.00	0.00	0
1997	Beaver	27.97	0.05	22.63	12
1997	Blowdown	22.45	0.04	5.66	3
1997	Development	0.00	0.00	.00	0
1997	Fire	10.17	0.02	3.77	2
1997	Forest harvest	0.00	0.00	0.00	0
1997	Forest pathogen	0.00	0.00	0.00	0
1997	Other	0.00	0.00	0.00	0
1998	Beaver	1.35	0.00	1.89	1
1998	Blowdown	0.00	0.00	0.00	0
1998	Development	0.00	0.00	0.00	0
1998	Fire	0.00	0.00	0.00	0
1998	Forest harvest	0.00	0.00	0.00	0
1998	Forest pathogen	0.00	0.00	0.00	0
1998	Other	0.00	0.00	0.00	0
1999	Beaver	2.03	0.00	3.77	2
1999	Blowdown	0.00	0.00	0.00	0
1999	Development	0.00	0.00	0.00	0
1999	Fire	0.00	0.00	0.00	0
1999	Forest harvest	0.00	0.00	0.00	0
1999	Forest pathogen	0.00	0.00	0.00	0
1999	Other	0.00	0.00	0.00	0
2000	Beaver	8.70	0.02	9.43	5
2000	Blowdown	3.87	0.01	1.89	1

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
2000	Development	0.00	0.00	0.00	0
2000	Fire	0.00	0.00	0.00	0
2000	Forest harvest	0.00	0.00	0.00	0
2000	Forest pathogen	149.49	0.28	79.19	42
2000	Other	0.00	0.00	0.00	0
2001	Beaver	49.16	0.09	26.40	14
2001	Blowdown	0.00	0.00	0.00	0
2001	Development	0.00	0.00	0.00	0
2001	Fire	0.00	0.00	0.00	0
2001	Forest harvest	0.00	0.00	0.00	0
2001	Forest pathogen	0.00	0.00	0.00	0
2001	Other	3.69	0.01	1.89	1
2002	Beaver	44.19	0.08	32.05	17
2002	Blowdown	47.79	0.09	18.85	10
2002	Development	0.00	0.00	0.00	0
2002	Fire	0.00	0.00	0.00	0
2002	Forest harvest	0.00	0.00	0.00	0
2002	Forest pathogen	0.00	0.00	0.00	0
2002	Other	1.26	0.00	1.89	1
2003	Beaver	16.01	0.03	16.97	9
2003	Blowdown	0.00	0.00	0.00	0
2003	Development	0.00	0.00	0.00	0
2003	Fire	0.00	0.00	0.00	0
2003	Forest harvest	0.00	0.00	0.00	0
2003	Forest pathogen	0.00	0.00	0.00	0
2003	Other	0.00	0.00	0.00	0
2004	Beaver	14.01	0.03	16.97	9
2004	Blowdown	0.00	0.00	0.00	0
2004	Development	0.00	0.00	0.00	0
2004	Fire	123.04	0.23	24.51	13
2004	Forest harvest	0.00	0.00	0.00	0
2004	Forest pathogen	0.00	0.00	0.00	0
2004	Other	0.00	0.00	0.00	0
2005	Beaver	14.22	0.03	15.08	8
2005	Blowdown	7.84	0.01	3.77	2
2005	Development	0.00	0.00	0.00	0
2005	Fire	57.49	0.11	30.17	16
2005	Forest harvest	0.00	0.00	0.00	0
2005	Forest pathogen	0.00	0.00	0.00	0
2005	Other	0.00	0.00	0.00	0

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
2006	Beaver	6.67	0.01	3.77	2
2006	Blowdown	26.58	0.05	11.31	6
2006	Development	0.00	0.00	0.00	0
2006	Fire	0.00	0.00	0.00	0
2006	Forest harvest	0.00	0.00	0.00	0
2006	Forest pathogen	0.00	0.00	0.00	0
2006	Other	0.00	0.00	0.00	0
2007	Beaver	6.96	0.01	5.66	3
2007	Blowdown	0.00	0.00	0.00	0
2007	Development	0.00	0.00	0.00	0
2007	Fire	0.27	0.00	1.89	1
2007	Forest harvest	0.00	0.00	0.00	0
2007	Forest pathogen	4.74	0.01	3.77	2
2007	Other	1.67	0.00	1.89	1
2008	Beaver	11.70	0.02	1.89	1
2008	Blowdown	0.00	0.00	0.00	0
2008	Development	0.00	0.00	0.00	0
2008	Fire	0.00	0.00	0.00	0
2008	Forest harvest	0.00	0.00	0.00	0
2008	Forest pathogen	0.00	0.00	0.00	0
2008	Other	0.00	0.00	0.00	0
2009	Beaver	4.07	0.01	3.77	2
2009	Blowdown	0.00	0.00	0.00	0
2009	Development	0.00	0.00	0.00	0
2009	Fire	0.00	0.00	0.00	0
2009	Forest harvest	0.00	0.00	0.00	0
2009	Forest pathogen	0.00	0.00	0.00	0
2009	Other	0.00	0.00	0.00	0
2010	Beaver	8.55	0.02	5.66	3
2010	Blowdown	0.00	0.00	0.00	0
2010	Development	0.00	0.00	0.00	0
2010	Fire	0.00	0.00	0.00	0
2010	Forest harvest	0.00	0.00	0.00	0
2010	Forest pathogen	0.00	0.00	0.00	0
2010	Other	0.00	0.00	0.00	0
2011	Beaver	3.94	0.01	3.77	2
2011	Blowdown	0.00	0.00	0.00	0
2011	Development	0.00	0.00	0.00	0
2011	Fire	0.00	0.00	0.00	0
2011	Forest harvest	0.00	0.00	0.00	0

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
2011	Forest pathogen	0.00	0.00	0.00	0
2011	Other	0.00	0.00	0.00	0
2012	Beaver	0.00	0.00	0.00	0
2012	Blowdown	0.00	0.00	0.00	0
2012	Development	0.00	0.00	0.00	0
2012	Fire	0.00	0.00	0.00	0
2012	Forest harvest	0.00	0.00	0.00	0
2012	Forest pathogen	62.28	0.12	1.89	1
2012	Other	0.00	0.00	0.00	0
2013	Beaver	3.96	0.01	3.77	2
2013	Blowdown	0.00	0.00	0.00	0
2013	Development	0.00	0.00	0.00	0
2013	Fire	0.00	0.00	0.00	0
2013	Forest harvest	0.00	0.00	0.00	0
2013	Forest pathogen	0.00	0.00	0.00	0
2013	Other	0.00	0.00	0.00	0

Table A2. Area, count of disturbances, and percent land disturbed outside VOYA during the analysis period. To enable equal comparison among different land areas counts were calculated as the number of disturbances per 100,000 ha.

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
1995	Beaver	45.64	0.01	8.73	32
1995	Blowdown	0	0	0	0
1995	Development	11.85	0	1.91	7
1995	Fire	0	0	0	0
1995	Forest harvest	2699.19	0.74	70.95	260
1995	Forest pathogen	0	0	0	0
1995	Other	8.96	0	0.55	2
1996	Beaver	39.38	0.01	6.55	24
1996	Blowdown	0	0	0	0
1996	Development	6.26	0	1.64	6
1996	Fire	0	0	0	0
1996	Forest harvest	2610.52	0.71	80.51	295
1996	Forest pathogen	0	0	0	0
1996	Other	0	0	0	0
1997	Beaver	77.1	0.02	13.1	48
1997	Blowdown	0	0	0	0
1997	Development	35.1	0.01	4.64	17
1997	Fire	0	0	0	0
1997	Forest harvest	4044.3	1.1	109.98	403
1997	Forest pathogen	0	0	0	0
1997	Other	0	0	0	0
1998	Beaver	47.52	0.01	4.09	15
1998	Blowdown	0	0	0	0
1998	Development	19.05	0.01	2.73	10
1998	Fire	0	0	0	0
1998	Forest harvest	2915.73	0.8	97.7	358
1998	Forest pathogen	0	0	0	0
1998	Other	3.06	0	0.27	1
1999	Beaver	28.1	0.01	1.09	4
1999	Blowdown	1735.87	0.47	59.49	218
1999	Development	4.91	0	0.55	2
1999	Fire	0	0	0	0
1999	Forest harvest	2222.69	0.61	56.49	207
1999	Forest pathogen	37.62	0.01	3.82	14
1999	Other	0	0	0	0
2000	Beaver	45.78	0.01	6.28	23
2000	Blowdown	0	0	0	0

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
2000	Development	27.89	0.01	3.55	13
2000	Fire	0	0	0	0
2000	Forest harvest	4656.89	1.27	100.15	367
2000	Forest pathogen	1965.98	0.54	123.08	451
2000	Other	3.46	0	0.27	1
2001	Beaver	271.92	0.07	16.1	59
2001	Blowdown	0	0	0	0
2001	Development	50.93	0.01	3.82	14
2001	Fire	0	0	0	0
2001	Forest harvest	2849.82	0.78	70.41	258
2001	Forest pathogen	331.05	0.09	21.29	78
2001	Other	0	0	0	0
2002	Beaver	99.65	0.03	8.73	32
2002	Blowdown	47.85	0.01	1.64	6
2002	Development	8.31	0	2.18	8
2002	Fire	0	0	0	0
2002	Forest harvest	2635.85	0.72	64.4	236
2002	Forest pathogen	31.1	0.01	2.18	8
2002	Other	0	0	0	0
2003	Beaver	30.25	0.01	2.73	10
2003	Blowdown	0	0	0	0
2003	Development	26.5	0.01	3.82	14
2003	Fire	0	0	0	0
2003	Forest harvest	4023.75	1.1	82.42	302
2003	Forest pathogen	0	0	0	0
2003	Other	0	0	0	0
2004	Beaver	11.29	0	1.36	5
2004	Blowdown	0	0	0	0
2004	Development	43.61	0.01	4.64	17
2004	Fire	0	0	0	0
2004	Forest harvest	3491.01	0.95	75.87	278
2004	Forest pathogen	0	0	0	0
2004	Other	0	0	0	0
2005	Beaver	39.93	0.01	4.09	15
2005	Blowdown	0	0	0	0
2005	Development	8.88	0	1.91	7
2005	Fire	0	0	0	0
2005	Forest harvest	3078.9	0.84	82.42	302
2005	Forest pathogen	0	0	0	0
2005	Other	9.81	0	1.09	4

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
2006	Beaver	6.89	0	1.09	4
2006	Blowdown	0	0	0	0
2006	Development	31.47	0.01	4.09	15
2006	Fire	280.94	0.08	18.83	69
2006	Forest harvest	1469.39	0.4	45.57	167
2006	Forest pathogen	44.08	0.01	4.09	15
2006	Other	0	0	0	0
2007	Beaver	13.57	0	1.09	4
2007	Blowdown	0	0	0	0
2007	Development	11.94	0	3.27	12
2007	Fire	0	0	0	0
2007	Forest harvest	1938.52	0.53	61.68	226
2007	Forest pathogen	5.67	0	0.27	1
2007	Other	1.62	0	0.27	1
2008	Beaver	15.61	0	1.36	5
2008	Blowdown	0	0	0	0
2008	Development	11.96	0	1.64	6
2008	Fire	0	0	0	0
2008	Forest harvest	1678.7	0.46	34.39	126
2008	Forest pathogen	0	0	0	0
2008	Other	0	0	0	0
2009	Beaver	56.7	0.02	3.82	14
2009	Blowdown	0	0	0	0
2009	Development	42.41	0.01	3	11
2009	Fire	0	0	0	0
2009	Forest harvest	2097.59	0.57	57.58	211
2009	Forest pathogen	0	0	0	0
2009	Other	2.29	0	0.55	2
2010	Beaver	59.04	0.02	4.09	15
2010	Blowdown	0	0	0	0
2010	Development	34.88	0.01	2.73	10
2010	Fire	0	0	0	0
2010	Forest harvest	1784.44	0.49	48.85	179
2010	Forest pathogen	0	0	0	0
2010	Other	4.14	0	0.27	1
2011	Beaver	30.02	0.01	3.55	13
2011	Blowdown	0	0	0	0
2011	Development	18.65	0.01	1.91	7
2011	Fire	3.78	0	0.27	1
2011	Forest harvest	2315.27	0.63	44.76	164

Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
2011	Forest pathogen	0	0	0	0
2011	Other	3.05	0	0.27	1
2012	Beaver	41.06	0.01	3	11
2012	Blowdown	0	0	0	0
2012	Development	14.25	0	1.91	7
2012	Fire	2.07	0	0.27	1
2012	Forest harvest	2498.78	0.68	66.04	242
2012	Forest pathogen	0	0	0	0
2012	Other	0	0	0	0
2013	Beaver	9.78	0	1.64	6
2013	Blowdown	0	0	0	0
2013	Development	0	0	0	0
2013	Fire	20.39	0.01	0.27	1
2013	Forest harvest	909.12	0.25	40.66	149
2013	Forest pathogen	0	0	0	0
2013	Other	0	0	0	0

Table A3. Area, count of disturbances, and percent land of ownership category 1 disturbed during the analysis period. To enable equal comparison among different land areas counts were calculated as the number of disturbances per 100,000 ha.

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Forest Service (USFS)	1995	Beaver	4.86	0.01	3.95	2
Forest Service (USFS)	1995	Blowdown	0	0	0	0
Forest Service (USFS)	1995	Development	18.14	0.04	9.87	5
Forest Service (USFS)	1995	Fire	0	0	0	0
Forest Service (USFS)	1995	Forest harvest	0	0	0	0
Forest Service (USFS)	1995	Forest pathogen	0	0	0	0
Forest Service (USFS)	1995	Other	0	0	0	0
Forest Service (USFS)	1996	Beaver	4.36	0.01	7.89	4
Forest Service (USFS)	1996	Blowdown	0	0	0	0
Forest Service (USFS)	1996	Development	0	0	0	0
Forest Service (USFS)	1996	Fire	0	0	0	0
Forest Service (USFS)	1996	Forest harvest	0	0	0	0
Forest Service (USFS)	1996	Forest pathogen	0	0	0	0
Forest Service (USFS)	1996	Other	0	0	0	0
Forest Service (USFS)	1997	Beaver	27.97	0.06	23.68	12
Forest Service (USFS)	1997	Blowdown	22.45	0.04	5.92	3
Forest Service (USFS)	1997	Development	0	0	0	0
Forest Service (USFS)	1997	Fire	10.17	0.02	3.95	2
Forest Service (USFS)	1997	Forest harvest	0	0	0	0
Forest Service (USFS)	1997	Forest pathogen	0	0	0	0
Forest Service (USFS)	1997	Other	0	0	0	0
Forest Service (USFS)	1998	Beaver	1.35	0	1.97	1
Forest Service (USFS)	1998	Blowdown	0	0	0	0
Forest Service (USFS)	1998	Development	0	0	0	0
Forest Service (USFS)	1998	Fire	0	0	0	0
Forest Service (USFS)	1998	Forest harvest	0	0	0	0
Forest Service (USFS)	1998	Forest pathogen	0	0	0	0
Forest Service (USFS)	1998	Other	0	0	0	0
Forest Service (USFS)	1999	Beaver	2.03	0	3.95	2
Forest Service (USFS)	1999	Blowdown	0	0	0	0
Forest Service (USFS)	1999	Development	0	0	0	0
Forest Service (USFS)	1999	Fire	0	0	0	0
Forest Service (USFS)	1999	Forest harvest	2.97	0.01	1.97	1
Forest Service (USFS)	1999	Forest pathogen	0	0	0	0
Forest Service (USFS)	1999	Other	0	0	0	0
Forest Service (USFS)	2000	Beaver	8.7	0.02	9.87	5

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Forest Service (USFS)	2000	Blowdown	3.87	0.01	1.97	1
Forest Service (USFS)	2000	Development	0	0	0	0
Forest Service (USFS)	2000	Fire	0	0	0	0
Forest Service (USFS)	2000	Forest harvest	0	0	0	0
Forest Service (USFS)	2000	Forest pathogen	149.49	0.29	82.87	42
Forest Service (USFS)	2000	Other	0	0	0	0
Forest Service (USFS)	2001	Beaver	49.16	0.1	27.62	14
Forest Service (USFS)	2001	Blowdown	0	0	0	0
Forest Service (USFS)	2001	Development	0	0	0	0
Forest Service (USFS)	2001	Fire	0	0	0	0
Forest Service (USFS)	2001	Forest harvest	0	0	0	0
Forest Service (USFS)	2001	Forest pathogen	0	0	0	0
Forest Service (USFS)	2001	Other	3.69	0.01	1.97	1
Forest Service (USFS)	2002	Beaver	44.19	0.09	33.54	17
Forest Service (USFS)	2002	Blowdown	47.79	0.09	19.73	10
Forest Service (USFS)	2002	Development	0	0	0	0
Forest Service (USFS)	2002	Fire	0	0	0	0
Forest Service (USFS)	2002	Forest harvest	0	0	0	0
Forest Service (USFS)	2002	Forest pathogen	0	0	0	0
Forest Service (USFS)	2002	Other	1.26	0	1.97	1
Forest Service (USFS)	2003	Beaver	16.01	0.03	17.76	9
Forest Service (USFS)	2003	Blowdown	0	0	0	0
Forest Service (USFS)	2003	Development	0	0	0	0
Forest Service (USFS)	2003	Fire	0	0	0	0
Forest Service (USFS)	2003	Forest harvest	0	0	0	0
Forest Service (USFS)	2003	Forest pathogen	0	0	0	0
Forest Service (USFS)	2003	Other	0	0	0	0
Forest Service (USFS)	2004	Beaver	14.01	0.03	17.76	9
Forest Service (USFS)	2004	Blowdown	0	0	0	0
Forest Service (USFS)	2004	Development	0	0	0	0
Forest Service (USFS)	2004	Fire	123.04	0.24	25.65	13
Forest Service (USFS)	2004	Forest harvest	0	0	0	0
Forest Service (USFS)	2004	Forest pathogen	0	0	0	0
Forest Service (USFS)	2004	Other	0	0	0	0
Forest Service (USFS)	2005	Beaver	14.22	0.03	15.78	8
Forest Service (USFS)	2005	Blowdown	7.84	0.02	3.95	2
Forest Service (USFS)	2005	Development	0	0	0	0
Forest Service (USFS)	2005	Fire	57.49	0.11	31.57	16
Forest Service (USFS)	2005	Forest harvest	0	0	0	0
Forest Service (USFS)	2005	Forest pathogen	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Forest Service (USFS)	2005	Other	0	0	0	0
Forest Service (USFS)	2006	Beaver	6.67	0.01	3.95	2
Forest Service (USFS)	2006	Blowdown	26.58	0.05	11.84	6
Forest Service (USFS)	2006	Development	0	0	0	0
Forest Service (USFS)	2006	Fire	0	0	0	0
Forest Service (USFS)	2006	Forest harvest	0	0	0	0
Forest Service (USFS)	2006	Forest pathogen	0	0	0	0
Forest Service (USFS)	2006	Other	0	0	0	0
Forest Service (USFS)	2007	Beaver	6.96	0.01	5.92	3
Forest Service (USFS)	2007	Blowdown	0	0	0	0
Forest Service (USFS)	2007	Development	0	0	0	0
Forest Service (USFS)	2007	Fire	0.27	0	1.97	1
Forest Service (USFS)	2007	Forest harvest	0	0	0	0
Forest Service (USFS)	2007	Forest pathogen	4.74	0.01	3.95	2
Forest Service (USFS)	2007	Other	1.67	0	1.97	1
Forest Service (USFS)	2008	Beaver	11.7	0.02	1.97	1
Forest Service (USFS)	2008	Blowdown	0	0	0	0
Forest Service (USFS)	2008	Development	0	0	0	0
Forest Service (USFS)	2008	Fire	0	0	0	0
Forest Service (USFS)	2008	Forest harvest	0	0	0	0
Forest Service (USFS)	2008	Forest pathogen	0	0	0	0
Forest Service (USFS)	2008	Other	0	0	0	0
Forest Service (USFS)	2009	Beaver	4.07	0.01	3.95	2
Forest Service (USFS)	2009	Blowdown	0	0	0	0
Forest Service (USFS)	2009	Development	0	0	0	0
Forest Service (USFS)	2009	Fire	0	0	0	0
Forest Service (USFS)	2009	Forest harvest	0	0	0	0
Forest Service (USFS)	2009	Forest pathogen	0	0	0	0
Forest Service (USFS)	2009	Other	0	0	0	0
Forest Service (USFS)	2010	Beaver	8.55	0.02	5.92	3
Forest Service (USFS)	2010	Blowdown	0	0	0	0
Forest Service (USFS)	2010	Development	0	0	0	0
Forest Service (USFS)	2010	Fire	0	0	0	0
Forest Service (USFS)	2010	Forest harvest	0	0	0	0
Forest Service (USFS)	2010	Forest pathogen	0	0	0	0
Forest Service (USFS)	2010	Other	0	0	0	0
Forest Service (USFS)	2011	Beaver	3.94	0.01	3.95	2
Forest Service (USFS)	2011	Blowdown	0	0	0	0
Forest Service (USFS)	2011	Development	0	0	0	0
Forest Service (USFS)	2011	Fire	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Forest Service (USFS)	2011	Forest harvest	0	0	0	0
Forest Service (USFS)	2011	Forest pathogen	0	0	0	0
Forest Service (USFS)	2011	Other	0	0	0	0
Forest Service (USFS)	2012	Beaver	0	0	0	0
Forest Service (USFS)	2012	Blowdown	0	0	0	0
Forest Service (USFS)	2012	Development	0	0	0	0
Forest Service (USFS)	2012	Fire	0	0	0	0
Forest Service (USFS)	2012	Forest harvest	0	0	0	0
Forest Service (USFS)	2012	Forest pathogen	62.28	0.12	1.97	1
Forest Service (USFS)	2012	Other	0	0	0	0
Forest Service (USFS)	2013	Beaver	3.96	0.01	3.95	2
Forest Service (USFS)	2013	Blowdown	0	0	0	0
Forest Service (USFS)	2013	Development	0	0	0	0
Forest Service (USFS)	2013	Fire	0	0	0	0
Forest Service (USFS)	2013	Forest harvest	0	0	0	0
Forest Service (USFS)	2013	Forest pathogen	0	0	0	0
Forest Service (USFS)	2013	Other	0	0	0	0
National Park Service (NPS)	1995	Beaver	12.69	0.01	7.02	12
National Park Service (NPS)	1995	Blowdown	0	0	0	0
National Park Service (NPS)	1995	Development	3.56	0	1.76	3
National Park Service (NPS)	1995	Fire	0	0	0	0
National Park Service (NPS)	1995	Forest harvest	1596.56	0.93	102.98	176
National Park Service (NPS)	1995	Forest pathogen	0	0	0	0
National Park Service (NPS)	1995	Other	0	0	0	0
National Park Service (NPS)	1996	Beaver	26.07	0.02	10.53	18
National Park Service (NPS)	1996	Blowdown	0	0	0	0
National Park Service (NPS)	1996	Development	2.64	0	1.76	3
National Park Service (NPS)	1996	Fire	0	0	0	0
National Park Service (NPS)	1996	Forest harvest	1558.65	0.91	115.27	197
National Park Service (NPS)	1996	Forest pathogen	0	0	0	0
National Park Service (NPS)	1996	Other	0	0	0	0
National Park Service (NPS)	1997	Beaver	52.89	0.03	21.65	37
National Park Service (NPS)	1997	Blowdown	0	0	0	0
National Park Service (NPS)	1997	Development	2.26	0	1.17	2
National Park Service (NPS)	1997	Fire	0	0	0	0
National Park Service (NPS)	1997	Forest harvest	2308.44	1.35	153.3	262
National Park Service (NPS)	1997	Forest pathogen	0	0	0	0
National Park Service (NPS)	1997	Other	0	0	0	0
National Park Service (NPS)	1998	Beaver	36.48	0.02	6.44	11
National Park Service (NPS)	1998	Blowdown	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
National Park Service (NPS)	1998	Development	7.99	0	2.34	4
National Park Service (NPS)	1998	Fire	0	0	0	0
National Park Service (NPS)	1998	Forest harvest	1542.09	0.9	133.99	229
National Park Service (NPS)	1998	Forest pathogen	0	0	0	0
National Park Service (NPS)	1998	Other	3.06	0	0.59	1
National Park Service (NPS)	1999	Beaver	1.13	0	0.59	1
National Park Service (NPS)	1999	Blowdown	254.72	0.15	23.99	41
National Park Service (NPS)	1999	Development	2.97	0	0.59	1
National Park Service (NPS)	1999	Fire	0	0	0	0
National Park Service (NPS)	1999	Forest harvest	1195.88	0.7	77.24	132
National Park Service (NPS)	1999	Forest pathogen	37.62	0.02	8.19	14
National Park Service (NPS)	1999	Other	0	0	0	0
National Park Service (NPS)	2000	Beaver	35.68	0.02	9.36	16
National Park Service (NPS)	2000	Blowdown	0	0	0	0
National Park Service (NPS)	2000	Development	9.27	0.01	2.34	4
National Park Service (NPS)	2000	Fire	0	0	0	0
National Park Service (NPS)	2000	Forest harvest	2602.82	1.52	143.94	246
National Park Service (NPS)	2000	Forest pathogen	1389.3	0.81	176.71	302
National Park Service (NPS)	2000	Other	3.46	0	0.59	1
National Park Service (NPS)	2001	Beaver	129.55	0.08	18.72	32
National Park Service (NPS)	2001	Blowdown	0	0	0	0
National Park Service (NPS)	2001	Development	28.23	0.02	2.93	5
National Park Service (NPS)	2001	Fire	0	0	0	0
National Park Service (NPS)	2001	Forest harvest	1592.53	0.93	85.43	146
National Park Service (NPS)	2001	Forest pathogen	228	0.13	32.77	56
National Park Service (NPS)	2001	Other	0	0	0	0
National Park Service (NPS)	2002	Beaver	7.47	0	4.1	7
National Park Service (NPS)	2002	Blowdown	21.73	0.01	1.76	3
National Park Service (NPS)	2002	Development	4.2	0	1.76	3
National Park Service (NPS)	2002	Fire	0	0	0	0
National Park Service (NPS)	2002	Forest harvest	1422	0.83	94.21	161
National Park Service (NPS)	2002	Forest pathogen	0	0	0	0
National Park Service (NPS)	2002	Other	0	0	0	0
National Park Service (NPS)	2003	Beaver	4.49	0	1.76	3
National Park Service (NPS)	2003	Blowdown	0	0	0	0
National Park Service (NPS)	2003	Development	7.32	0	2.93	5
National Park Service (NPS)	2003	Fire	0	0	0	0
National Park Service (NPS)	2003	Forest harvest	2118.74	1.24	120.54	206
National Park Service (NPS)	2003	Forest pathogen	0	0	0	0
National Park Service (NPS)	2003	Other	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
National Park Service (NPS)	2004	Beaver	8.13	0	2.34	4
National Park Service (NPS)	2004	Blowdown	0	0	0	0
National Park Service (NPS)	2004	Development	36.73	0.02	5.27	9
National Park Service (NPS)	2004	Fire	0	0	0	0
National Park Service (NPS)	2004	Forest harvest	1988.8	1.16	114.69	196
National Park Service (NPS)	2004	Forest pathogen	0	0	0	0
National Park Service (NPS)	2004	Other	0	0	0	0
National Park Service (NPS)	2005	Beaver	22.41	0.01	6.44	11
National Park Service (NPS)	2005	Blowdown	0	0	0	0
National Park Service (NPS)	2005	Development	2.39	0	2.34	4
National Park Service (NPS)	2005	Fire	0	0	0	0
National Park Service (NPS)	2005	Forest harvest	2137.29	1.25	129.9	222
National Park Service (NPS)	2005	Forest pathogen	0	0	0	0
National Park Service (NPS)	2005	Other	0	0	0	0
National Park Service (NPS)	2006	Beaver	5.92	0	1.76	3
National Park Service (NPS)	2006	Blowdown	0	0	0	0
National Park Service (NPS)	2006	Development	13	0.01	5.27	9
National Park Service (NPS)	2006	Fire	0	0	0	0
National Park Service (NPS)	2006	Forest harvest	1142.45	0.67	83.09	142
National Park Service (NPS)	2006	Forest pathogen	0	0	0	0
National Park Service (NPS)	2006	Other	0	0	0	0
National Park Service (NPS)	2007	Beaver	12.22	0.01	1.76	3
National Park Service (NPS)	2007	Blowdown	0	0	0	0
National Park Service (NPS)	2007	Development	1.35	0	1.17	2
National Park Service (NPS)	2007	Fire	0	0	0	0
National Park Service (NPS)	2007	Forest harvest	1305.14	0.76	84.26	144
National Park Service (NPS)	2007	Forest pathogen	0	0	0	0
National Park Service (NPS)	2007	Other	1.62	0	0.59	1
National Park Service (NPS)	2008	Beaver	4.86	0	0.59	1
National Park Service (NPS)	2008	Blowdown	0	0	0	0
National Park Service (NPS)	2008	Development	3.62	0	1.17	2
National Park Service (NPS)	2008	Fire	0	0	0	0
National Park Service (NPS)	2008	Forest harvest	716.6	0.42	37.45	64
National Park Service (NPS)	2008	Forest pathogen	0	0	0	0
National Park Service (NPS)	2008	Other	0	0	0	0
National Park Service (NPS)	2009	Beaver	15.98	0.01	2.34	4
National Park Service (NPS)	2009	Blowdown	0	0	0	0
National Park Service (NPS)	2009	Development	27.67	0.02	2.93	5
National Park Service (NPS)	2009	Fire	0	0	0	0
National Park Service (NPS)	2009	Forest harvest	1159.9	0.68	77.82	133

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
National Park Service (NPS)	2009	Forest pathogen	0	0	0	0
National Park Service (NPS)	2009	Other	1.3	0	0.59	1
National Park Service (NPS)	2010	Beaver	18.05	0.01	3.51	6
National Park Service (NPS)	2010	Blowdown	0	0	0	0
National Park Service (NPS)	2010	Development	2.56	0	1.76	3
National Park Service (NPS)	2010	Fire	0	0	0	0
National Park Service (NPS)	2010	Forest harvest	776.59	0.45	56.76	97
National Park Service (NPS)	2010	Forest pathogen	0	0	0	0
National Park Service (NPS)	2010	Other	0	0	0	0
National Park Service (NPS)	2011	Beaver	14.38	0.01	4.68	8
National Park Service (NPS)	2011	Blowdown	0	0	0	0
National Park Service (NPS)	2011	Development	0.99	0	0.59	1
National Park Service (NPS)	2011	Fire	3.78	0	0.59	1
National Park Service (NPS)	2011	Forest harvest	846.01	0.5	53.25	91
National Park Service (NPS)	2011	Forest pathogen	0	0	0	0
National Park Service (NPS)	2011	Other	3.05	0	0.59	1
National Park Service (NPS)	2012	Beaver	19.01	0.01	2.93	5
National Park Service (NPS)	2012	Blowdown	0	0	0	0
National Park Service (NPS)	2012	Development	4.14	0	0.59	1
National Park Service (NPS)	2012	Fire	0	0	0	0
National Park Service (NPS)	2012	Forest harvest	1460.82	0.85	84.26	144
National Park Service (NPS)	2012	Forest pathogen	0	0	0	0
National Park Service (NPS)	2012	Other	0	0	0	0
National Park Service (NPS)	2013	Beaver	6.27	0	1.76	3
National Park Service (NPS)	2013	Blowdown	0	0	0	0
National Park Service (NPS)	2013	Development	0	0	0	0
National Park Service (NPS)	2013	Fire	0	0	0	0
National Park Service (NPS)	2013	Forest harvest	573.36	0.34	52.66	90
National Park Service (NPS)	2013	Forest pathogen	0	0	0	0
National Park Service (NPS)	2013	Other	0	0	0	0
Other State Land	1995	Beaver	12.53	0.01	3.7	5
Other State Land	1995	Blowdown	0	0	0	0
Other State Land	1995	Development	3.64	0	2.22	3
Other State Land	1995	Fire	0	0	0	0
Other State Land	1995	Forest harvest	731.61	0.54	45.88	62
Other State Land	1995	Forest pathogen	0	0	0	0
Other State Land	1996	Other	8.96	0.01	1.48	2
Other State Land	1996	Beaver	11.45	0.01	2.96	4
Other State Land	1996	Blowdown	0	0	0	0
Other State Land	1996	Development	3.63	0	2.22	3

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Other State Land	1996	Fire	0	0	0	0
Other State Land	1996	Forest harvest	608.12	0.45	48.84	66
Other State Land	1996	Forest pathogen	0	0	0	0
Other State Land	1996	Other	0	0	0	0
Other State Land	1997	Beaver	15.62	0.01	4.44	6
Other State Land	1997	Blowdown	0	0	0	0
Other State Land	1997	Development	32.84	0.02	11.1	15
Other State Land	1997	Fire	0	0	0	0
Other State Land	1997	Forest harvest	1567.04	1.16	91.76	124
Other State Land	1997	Forest pathogen	0	0	0	0
Other State Land	1997	Other	0	0	0	0
Other State Land	1998	Beaver	10.58	0.01	2.22	3
Other State Land	1998	Blowdown	0	0	0	0
Other State Land	1998	Development	11.06	0.01	4.44	6
Other State Land	1998	Fire	0	0	0	0
Other State Land	1998	Forest harvest	1052.58	0.78	75.48	102
Other State Land	1998	Forest pathogen	0	0	0	0
Other State Land	1998	Other	0	0	0	0
Other State Land	1999	Beaver	26.96	0.02	2.22	3
Other State Land	1999	Blowdown	0	0	0	0
Other State Land	1999	Development	1.94	0	0.74	1
Other State Land	1999	Fire	0	0	0	0
Other State Land	1999	Forest harvest	932.85	0.69	49.58	67
Other State Land	1999	Forest pathogen	0	0	0	0
Other State Land	1999	Other	0	0	0	0
Other State Land	2000	Beaver	10.1	0.01	5.18	7
Other State Land	2000	Blowdown	0	0	0	0
Other State Land	2000	Development	18.62	0.01	6.66	9
Other State Land	2000	Fire	0	0	0	0
Other State Land	2000	Forest harvest	1876.86	1.39	77.7	105
Other State Land	2000	Forest pathogen	576.68	0.43	110.26	149
Other State Land	2000	Other	0	0	0	0
Other State Land	2001	Beaver	112.7	0.08	14.8	20
Other State Land	2001	Blowdown	0	0	0	0
Other State Land	2001	Development	22.7	0.02	6.66	9
Other State Land	2001	Fire	0	0	0	0
Other State Land	2001	Forest harvest	964.22	0.71	61.42	83
Other State Land	2001	Forest pathogen	30.51	0.02	9.62	13
Other State Land	2001	Other	0	0	0	0
Other State Land	2002	Beaver	83.81	0.06	16.28	22

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Other State Land	2002	Blowdown	26.12	0.02	2.22	3
Other State Land	2002	Development	4.11	0	3.7	5
Other State Land	2002	Fire	0	0	0	0
Other State Land	2002	Forest harvest	985.83	0.73	49.58	67
Other State Land	2002	Forest pathogen	31.1	0.02	5.92	8
Other State Land	2002	Other	0	0	0	0
Other State Land	2003	Beaver	24.23	0.02	4.44	6
Other State Land	2003	Blowdown	0	0	0	0
Other State Land	2003	Development	19.18	0.01	6.66	9
Other State Land	2003	Fire	0	0	0	0
Other State Land	2003	Forest harvest	1895.38	1.4	69.56	94
Other State Land	2003	Forest pathogen	0	0	0	0
Other State Land	2003	Other	0	0	0	0
Other State Land	2004	Beaver	3.16	0	0.74	1
Other State Land	2004	Blowdown	0	0	0	0
Other State Land	2004	Development	6.89	0.01	5.92	8
Other State Land	2004	Fire	0	0	0	0
Other State Land	2004	Forest harvest	1420.43	1.05	56.98	77
Other State Land	2004	Forest pathogen	0	0	0	0
Other State Land	2004	Other	0	0	0	0
Other State Land	2005	Beaver	5.4	0	1.48	2
Other State Land	2005	Blowdown	0	0	0	0
Other State Land	2005	Development	6.49	0	2.22	3
Other State Land	2005	Fire	0	0	0	0
Other State Land	2005	Forest harvest	937.38	0.69	57.72	78
Other State Land	2005	Forest pathogen	0	0	0	0
Other State Land	2005	Other	9.81	0.01	2.96	4
Other State Land	2006	Beaver	0	0	0	0
Other State Land	2006	Blowdown	0	0	0	0
Other State Land	2006	Development	18.47	0.01	4.44	6
Other State Land	2006	Fire	0	0	0	0
Other State Land	2006	Forest harvest	326.94	0.24	18.5	25
Other State Land	2006	Forest pathogen	44.08	0.03	11.1	15
Other State Land	2006	Other	0	0	0	0
Other State Land	2007	Beaver	0	0	0	0
Other State Land	2007	Blowdown	0	0	0	0
Other State Land	2007	Development	10.59	0.01	7.4	10
Other State Land	2007	Fire	0	0	0	0
Other State Land	2007	Forest harvest	625.91	0.46	57.72	78
Other State Land	2007	Forest pathogen	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Other State Land	2007	Other	0	0	0	0
Other State Land	2008	Beaver	8.23	0.01	2.22	3
Other State Land	2008	Blowdown	0	0	0	0
Other State Land	2008	Development	8.34	0.01	2.96	4
Other State Land	2008	Fire	0	0	0	0
Other State Land	2008	Forest harvest	932.3	0.69	40.7	55
Other State Land	2008	Forest pathogen	0	0	0	0
Other State Land	2008	Other	0	0	0	0
Other State Land	2009	Beaver	33.62	0.02	5.18	7
Other State Land	2009	Blowdown	0	0	0	0
Other State Land	2009	Development	14.74	0.01	4.44	6
Other State Land	2009	Fire	0	0	0	0
Other State Land	2009	Forest harvest	833.77	0.62	51.8	70
Other State Land	2009	Forest pathogen	0	0	0	0
Other State Land	2009	Other	0.99	0	0.74	1
Other State Land	2010	Beaver	18.23	0.01	5.18	7
Other State Land	2010	Blowdown	0	0	0	0
Other State Land	2010	Development	32.33	0.02	5.18	7
Other State Land	2010	Fire	0	0	0	0
Other State Land	2010	Forest harvest	734.55	0.54	42.18	57
Other State Land	2010	Forest pathogen	0	0	0	0
Other State Land	2010	Other	4.14	0	0.74	1
Other State Land	2011	Beaver	15.64	0.01	3.7	5
Other State Land	2011	Blowdown	0	0	0	0
Other State Land	2011	Development	17.66	0.01	4.44	6
Other State Land	2011	Fire	0	0	0	0
Other State Land	2011	Forest harvest	1272.23	0.94	40.7	55
Other State Land	2011	Forest pathogen	0	0	0	0
Other State Land	2011	Other	0	0	0	0
Other State Land	2012	Beaver	14.58	0.01	3.7	5
Other State Land	2012	Blowdown	0	0	0	0
Other State Land	2012	Development	10.11	0.01	4.44	6
Other State Land	2012	Fire	0	0	0	0
Other State Land	2012	Forest harvest	830.69	0.61	45.88	62
Other State Land	2012	Forest pathogen	0	0	0	0
Other State Land	2012	Other	0	0	0	0
Other State Land	2013	Beaver	3.51	0	2.22	3
Other State Land	2013	Blowdown	0	0	0	0
Other State Land	2013	Development	0	0	0	0
Other State Land	2013	Fire	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Other State Land	2013	Forest harvest	189.39	0.14	24.42	33
Other State Land	2013	Forest pathogen	0	0	0	0
Other State Land	2013	Other	0	0	0	0
Unknown	1995	Beaver	20.42	0.03	24.08	15
Unknown	1995	Blowdown	0	0	0	0
Unknown	1995	Development	0	0	0	0
Unknown	1995	Fire	0	0	0	0
Unknown	1995	Forest harvest	371.02	0.6	35.31	22
Unknown	1995	Forest pathogen	0	0	0	0
Unknown	1995	Other	0	0	0	0
Unknown	1996	Beaver	0.94	0	1.61	1
Unknown	1996	Blowdown	0	0	0	0
Unknown	1996	Development	0	0	0	0
Unknown	1996	Fire	0	0	0	0
Unknown	1996	Forest harvest	443.75	0.71	51.36	32
Unknown	1996	Forest pathogen	0	0	0	0
Unknown	1996	Other	0	0	0	0
Unknown	1997	Beaver	8.6	0.01	8.03	5
Unknown	1997	Blowdown	0	0	0	0
Unknown	1997	Development	0	0	0	0
Unknown	1997	Fire	0	0	0	0
Unknown	1997	Forest harvest	168.83	0.27	27.29	17
Unknown	1997	Forest pathogen	0	0	0	0
Unknown	1997	Other	0	0	0	0
Unknown	1998	Beaver	0.46	0	1.61	1
Unknown	1998	Blowdown	0	0	0	0
Unknown	1998	Development	0	0	0	0
Unknown	1998	Fire	0	0	0	0
Unknown	1998	Forest harvest	321.06	0.52	43.34	27
Unknown	1998	Forest pathogen	0	0	0	0
Unknown	1998	Other	0	0	0	0
Unknown	1999	Beaver	0	0	0	0
Unknown	1999	Blowdown	1481.15	2.38	284.1	177
Unknown	1999	Development	0	0	0	0
Unknown	1999	Fire	0	0	0	0
Unknown	1999	Forest harvest	90.99	0.15	11.24	7
Unknown	1999	Forest pathogen	0	0	0	0
Unknown	1999	Other	0	0	0	0
Unknown	2000	Beaver	0	0	0	0
Unknown	2000	Blowdown	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Unknown	2000	Development	0	0	0	0
Unknown	2000	Fire	0	0	0	0
Unknown	2000	Forest harvest	177.21	0.28	25.68	16
Unknown	2000	Forest pathogen	0	0	0	0
Unknown	2000	Other	0	0	0	0
Unknown	2001	Beaver	29.67	0.05	11.24	7
Unknown	2001	Blowdown	0	0	0	0
Unknown	2001	Development	0	0	0	0
Unknown	2001	Fire	0	0	0	0
Unknown	2001	Forest harvest	293.07	0.47	46.55	29
Unknown	2001	Forest pathogen	72.54	0.12	14.45	9
Unknown	2001	Other	0	0	0	0
Unknown	2002	Beaver	8.37	0.01	4.82	3
Unknown	2002	Blowdown	0	0	0	0
Unknown	2002	Development	0	0	0	0
Unknown	2002	Fire	0	0	0	0
Unknown	2002	Forest harvest	228.02	0.37	12.84	8
Unknown	2002	Forest pathogen	0	0	0	0
Unknown	2002	Other	0	0	0	0
Unknown	2003	Beaver	1.53	0	1.61	1
Unknown	2003	Blowdown	0	0	0	0
Unknown	2003	Development	0	0	0	0
Unknown	2003	Fire	0	0	0	0
Unknown	2003	Forest harvest	9.63	0.02	3.21	2
Unknown	2003	Forest pathogen	0	0	0	0
Unknown	2003	Other	0	0	0	0
Unknown	2004	Beaver	0	0	0	0
Unknown	2004	Blowdown	0	0	0	0
Unknown	2004	Development	0	0	0	0
Unknown	2004	Fire	0	0	0	0
Unknown	2004	Forest harvest	81.78	0.13	8.03	5
Unknown	2004	Forest pathogen	0	0	0	0
Unknown	2004	Other	0	0	0	0
Unknown	2005	Beaver	12.12	0.02	3.21	2
Unknown	2005	Blowdown	0	0	0	0
Unknown	2005	Development	0	0	0	0
Unknown	2005	Fire	0	0	0	0
Unknown	2005	Forest harvest	4.23	0.01	3.21	2
Unknown	2005	Forest pathogen	0	0	0	0
Unknown	2005	Other	0	0	0	0

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Unknown	2006	Beaver	0.97	0	1.61	1
Unknown	2006	Blowdown	0	0	0	0
Unknown	2006	Development	0	0	0	0
Unknown	2006	Fire	280.94	0.45	110.75	69
Unknown	2006	Forest harvest	0	0	0	0
Unknown	2006	Forest pathogen	0	0	0	0
Unknown	2006	Other	0	0	0	0
Unknown	2007	Beaver	1.35	0	1.61	1
Unknown	2007	Blowdown	0	0	0	0
Unknown	2007	Development	0	0	0	0
Unknown	2007	Fire	0	0	0	0
Unknown	2007	Forest harvest	7.47	0.01	6.42	4
Unknown	2007	Forest pathogen	5.67	0.01	1.61	1
Unknown	2007	Other	0	0	0	0
Unknown	2008	Beaver	2.52	0	1.61	1
Unknown	2008	Blowdown	0	0	0	0
Unknown	2008	Development	0	0	0	0
Unknown	2008	Fire	0	0	0	0
Unknown	2008	Forest harvest	29.8	0.05	11.24	7
Unknown	2008	Forest pathogen	0	0	0	0
Unknown	2008	Other	0	0	0	0
Unknown	2009	Beaver	7.11	0.01	4.82	3
Unknown	2009	Blowdown	0	0	0	0
Unknown	2009	Development	0	0	0	0
Unknown	2009	Fire	0	0	0	0
Unknown	2009	Forest harvest	103.91	0.17	12.84	8
Unknown	2009	Forest pathogen	0	0	0	0
Unknown	2009	Other	0	0	0	0
Unknown	2010	Beaver	22.76	0.04	3.21	2
Unknown	2010	Blowdown	0	0	0	0
Unknown	2010	Development	0	0	0	0
Unknown	2010	Fire	0	0	0	0
Unknown	2010	Forest harvest	273.3	0.44	40.13	25
Unknown	2010	Forest pathogen	0	0	0	0
Unknown	2010	Other	0	0	0	0
Unknown	2011	Beaver	0	0	0	0
Unknown	2011	Blowdown	0	0	0	0
Unknown	2011	Development	0	0	0	0
Unknown	2011	Fire	0	0	0	0
Unknown	2011	Forest harvest	197.03	0.32	28.89	18

Owner category 1	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Unknown	2011	Forest pathogen	0	0	0	0
Unknown	2011	Other	0	0	0	0
Unknown	2012	Beaver	7.47	0.01	1.61	1
Unknown	2012	Blowdown	0	0	0	0
Unknown	2012	Development	0	0	0	0
Unknown	2012	Fire	2.07	0	1.61	1
Unknown	2012	Forest harvest	207.28	0.33	57.78	36
Unknown	2012	Forest pathogen	0	0	0	0
Unknown	2012	Other	0	0	0	0
Unknown	2013	Beaver	0	0	0	0
Unknown	2013	Blowdown	0	0	0	0
Unknown	2013	Development	0	0	0	0
Unknown	2013	Fire	20.39	0.03	1.61	1
Unknown	2013	Forest harvest	146.37	0.23	41.73	26
Unknown	2013	Forest pathogen	0	0	0	0
Unknown	2013	Other	0	0	0	0

Table A4. Area, count of disturbances, and percent land of ownership category 2 disturbed during the analysis period. To enable equal comparison among different land areas counts were calculated as the number of disturbances per 100,000 ha.

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Crown land	1995	Beaver	12.15	0.01	4.24	4
Crown land	1995	Blowdown	0	0	0	0
Crown land	1995	Development	0	0	0	0
Crown land	1995	Fire	0	0	0	0
Crown land	1995	Forest harvest	430.86	0.46	20.12	19
Crown land	1995	Forest pathogen	0	0	0	0
Crown land	1995	Other	6.39	0.01	1.06	1
Crown land	1996	Beaver	9.2	0.01	2.12	2
Crown land	1996	Blowdown	0	0	0	0
Crown land	1996	Development	0	0	0	0
Crown land	1996	Fire	0	0	0	0
Crown land	1996	Forest harvest	364.13	0.39	16.94	16
Crown land	1996	Forest pathogen	0	0	0	0
Crown land	1996	Other	0	0	0	0
Crown land	1997	Beaver	13.32	0.01	3.18	3
Crown land	1997	Blowdown	0	0	0	0
Crown land	1997	Development	6.02	0.01	2.12	2
Crown land	1997	Fire	0	0	0	0
Crown land	1997	Forest harvest	848.85	0.9	62.47	59
Crown land	1997	Forest pathogen	0	0	0	0
Crown land	1997	Other	0	0	0	0
Crown land	1998	Beaver	8.64	0.01	2.12	2
Crown land	1998	Blowdown	0	0	0	0
Crown land	1998	Development	0	0	0	0
Crown land	1998	Fire	0	0	0	0
Crown land	1998	Forest harvest	639.73	0.68	46.59	44
Crown land	1998	Forest pathogen	0	0	0	0
Crown land	1998	Other	0	0	0	0
Crown land	1999	Beaver	26.96	0.03	3.18	3
Crown land	1999	Blowdown	0	0	0	0
Crown land	1999	Development	0	0	0	0
Crown land	1999	Fire	0	0	0	0
Crown land	1999	Forest harvest	658.16	0.7	30.71	29
Crown land	1999	Forest pathogen	0	0	0	0
Crown land	1999	Other	0	0	0	0
Crown land	2000	Beaver	5.08	0.01	3.18	3

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Crown land	2000	Blowdown	0	0	0	0
Crown land	2000	Development	6	0.01	4.24	4
Crown land	2000	Fire	0	0	0	0
Crown land	2000	Forest harvest	1407.45	1.49	43.41	41
Crown land	2000	Forest pathogen	198.11	0.21	47.65	45
Crown land	2000	Other	0	0	0	0
Crown land	2001	Beaver	110.18	0.12	20.12	19
Crown land	2001	Blowdown	0	0	0	0
Crown land	2001	Development	13.64	0.01	4.24	4
Crown land	2001	Fire	0	0	0	0
Crown land	2001	Forest harvest	672.17	0.71	42.36	40
Crown land	2001	Forest pathogen	0	0	0	0
Crown land	2001	Other	0	0	0	0
Crown land	2002	Beaver	80.38	0.09	21.18	20
Crown land	2002	Blowdown	26.12	0.03	3.18	3
Crown land	2002	Development	0.38	0	1.06	1
Crown land	2002	Fire	0	0	0	0
Crown land	2002	Forest harvest	829.76	0.88	43.41	41
Crown land	2002	Forest pathogen	31.1	0.03	8.47	8
Crown land	2002	Other	0	0	0	0
Crown land	2003	Beaver	24.23	0.03	6.35	6
Crown land	2003	Blowdown	0	0	0	0
Crown land	2003	Development	0	0	0	0
Crown land	2003	Fire	0	0	0	0
Crown land	2003	Forest harvest	1558.13	1.65	52.94	50
Crown land	2003	Forest pathogen	0	0	0	0
Crown land	2003	Other	0	0	0	0
Crown land	2004	Beaver	3.16	0	1.06	1
Crown land	2004	Blowdown	0	0	0	0
Crown land	2004	Development	1.15	0	1.06	1
Crown land	2004	Fire	0	0	0	0
Crown land	2004	Forest harvest	1134.14	1.2	34.94	33
Crown land	2004	Forest pathogen	0	0	0	0
Crown land	2004	Other	0	0	0	0
Crown land	2005	Beaver	1.98	0	1.06	1
Crown land	2005	Blowdown	0	0	0	0
Crown land	2005	Development	3.13	0	1.06	1
Crown land	2005	Fire	0	0	0	0
Crown land	2005	Forest harvest	629.43	0.67	37.06	35
Crown land	2005	Forest pathogen	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Crown land	2005	Other	9.81	0.01	4.24	4
Crown land	2006	Beaver	0	0	0	0
Crown land	2006	Blowdown	0	0	0	0
Crown land	2006	Development	0	0	0	0
Crown land	2006	Fire	0	0	0	0
Crown land	2006	Forest harvest	146.18	0.15	3.18	3
Crown land	2006	Forest pathogen	44.08	0.05	15.88	15
Crown land	2006	Other	0	0	0	0
Crown land	2007	Beaver	0	0	0	0
Crown land	2007	Blowdown	0	0	0	0
Crown land	2007	Development	3.43	0	5.29	5
Crown land	2007	Fire	0	0	0	0
Crown land	2007	Forest harvest	418.04	0.44	51.89	49
Crown land	2007	Forest pathogen	0	0	0	0
Crown land	2007	Other	0	0	0	0
Crown land	2008	Beaver	4.95	0.01	2.12	2
Crown land	2008	Blowdown	0	0	0	0
Crown land	2008	Development	3.59	0	1.06	1
Crown land	2008	Fire	0	0	0	0
Crown land	2008	Forest harvest	762.11	0.81	42.36	40
Crown land	2008	Forest pathogen	0	0	0	0
Crown land	2008	Other	0	0	0	0
Crown land	2009	Beaver	33.62	0.04	7.41	7
Crown land	2009	Blowdown	0	0	0	0
Crown land	2009	Development	0.2	0	1.06	1
Crown land	2009	Fire	0	0	0	0
Crown land	2009	Forest harvest	589.35	0.62	46.59	44
Crown land	2009	Forest pathogen	0	0	0	0
Crown land	2009	Other	0.99	0	1.06	1
Crown land	2010	Beaver	16.97	0.02	6.35	6
Crown land	2010	Blowdown	0	0	0	0
Crown land	2010	Development	32.33	0.03	7.41	7
Crown land	2010	Fire	0	0	0	0
Crown land	2010	Forest harvest	584.09	0.62	29.65	28
Crown land	2010	Forest pathogen	0	0	0	0
Crown land	2010	Other	4.14	0	1.06	1
Crown land	2011	Beaver	15.17	0.02	4.24	4
Crown land	2011	Blowdown	0	0	0	0
Crown land	2011	Development	13.32	0.01	2.12	2
Crown land	2011	Fire	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Crown land	2011	Forest harvest	946.25	1	31.77	30
Crown land	2011	Forest pathogen	0	0	0	0
Crown land	2011	Other	0	0	0	0
Crown land	2012	Beaver	14.58	0.02	5.29	5
Crown land	2012	Blowdown	0	0	0	0
Crown land	2012	Development	0	0	0	0
Crown land	2012	Fire	0	0	0	0
Crown land	2012	Forest harvest	631.39	0.67	39.18	37
Crown land	2012	Forest pathogen	0	0	0	0
Crown land	2012	Other	0	0	0	0
Crown land	2013	Beaver	2.61	0	2.12	2
Crown land	2013	Blowdown	0	0	0	0
Crown land	2013	Development	0	0	0	0
Crown land	2013	Fire	0	0	0	0
Crown land	2013	Forest harvest	124.56	0.13	19.06	18
Crown land	2013	Forest pathogen	0	0	0	0
Crown land	2013	Other	0	0	0	0
Federal	1995	Beaver	20.75	0.01	11.26	16
Federal	1995	Blowdown	0	0	0	0
Federal	1995	Development	18.14	0.01	3.52	5
Federal	1995	Fire	0	0	0	0
Federal	1995	Forest harvest	900.61	0.63	62.61	89
Federal	1995	Forest pathogen	0	0	0	0
Federal	1995	Other	0	0	0	0
Federal	1996	Beaver	10.12	0.01	6.33	9
Federal	1996	Blowdown	0	0	0	0
Federal	1996	Development	0	0	0	0
Federal	1996	Fire	0	0	0	0
Federal	1996	Forest harvest	719.24	0.51	44.32	63
Federal	1996	Forest pathogen	0	0	0	0
Federal	1996	Other	0	0	0	0
Federal	1997	Beaver	49.56	0.03	14.77	21
Federal	1997	Blowdown	22.45	0.02	2.11	3
Federal	1997	Development	0	0	0	0
Federal	1997	Fire	9.09	0.01	0.7	1
Federal	1997	Forest harvest	596.44	0.42	47.83	68
Federal	1997	Forest pathogen	0	0	0	0
Federal	1997	Other	0	0	0	0
Federal	1998	Beaver	12.79	0.01	2.81	4
Federal	1998	Blowdown	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Federal	1998	Development	0	0	0	0
Federal	1998	Fire	0	0	0	0
Federal	1998	Forest harvest	443.51	0.31	39.39	56
Federal	1998	Forest pathogen	0	0	0	0
Federal	1998	Other	0	0	0	0
Federal	1999	Beaver	2.03	0	1.41	2
Federal	1999	Blowdown	1088.82	0.77	90.04	128
Federal	1999	Development	0	0	0	0
Federal	1999	Fire	0	0	0	0
Federal	1999	Forest harvest	226.71	0.16	19.7	28
Federal	1999	Forest pathogen	0	0	0	0
Federal	1999	Other	0	0	0	0
Federal	2000	Beaver	21.21	0.01	6.33	9
Federal	2000	Blowdown	3.87	0	0.7	1
Federal	2000	Development	0	0	0	0
Federal	2000	Fire	0	0	0	0
Federal	2000	Forest harvest	709.94	0.5	28.84	41
Federal	2000	Forest pathogen	545.35	0.38	68.94	98
Federal	2000	Other	0	0	0	0
Federal	2001	Beaver	130.82	0.09	21.81	31
Federal	2001	Blowdown	0	0	0	0
Federal	2001	Development	0	0	0	0
Federal	2001	Fire	0	0	0	0
Federal	2001	Forest harvest	496.74	0.35	36.58	52
Federal	2001	Forest pathogen	115.11	0.08	11.96	17
Federal	2001	Other	3.69	0	0.7	1
Federal	2002	Beaver	53.86	0.04	14.77	21
Federal	2002	Blowdown	67.07	0.05	7.74	11
Federal	2002	Development	0	0	0	0
Federal	2002	Fire	0	0	0	0
Federal	2002	Forest harvest	411.49	0.29	28.84	41
Federal	2002	Forest pathogen	0	0	0	0
Federal	2002	Other	1.26	0	0.7	1
Federal	2003	Beaver	21.09	0.01	8.44	12
Federal	2003	Blowdown	0	0	0	0
Federal	2003	Development	3.6	0	0.7	1
Federal	2003	Fire	0	0	0	0
Federal	2003	Forest harvest	381.2	0.27	25.32	36
Federal	2003	Forest pathogen	0	0	0	0
Federal	2003	Other	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Federal	2004	Beaver	16.36	0.01	7.03	10
Federal	2004	Blowdown	0	0	0	0
Federal	2004	Development	0	0	0	0
Federal	2004	Fire	123.04	0.09	9.14	13
Federal	2004	Forest harvest	360.44	0.25	23.21	33
Federal	2004	Forest pathogen	0	0	0	0
Federal	2004	Other	0	0	0	0
Federal	2005	Beaver	24.91	0.02	8.44	12
Federal	2005	Blowdown	7.84	0.01	1.41	2
Federal	2005	Development	0	0	0	0
Federal	2005	Fire	57.49	0.04	11.26	16
Federal	2005	Forest harvest	426.33	0.3	46.43	66
Federal	2005	Forest pathogen	0	0	0	0
Federal	2005	Other	0	0	0	0
Federal	2006	Beaver	11.22	0.01	3.52	5
Federal	2006	Blowdown	26.58	0.02	4.22	6
Federal	2006	Development	0	0	0	0
Federal	2006	Fire	241.01	0.17	42.21	60
Federal	2006	Forest harvest	76.06	0.05	10.55	15
Federal	2006	Forest pathogen	0	0	0	0
Federal	2006	Other	0	0	0	0
Federal	2007	Beaver	17.22	0.01	4.22	6
Federal	2007	Blowdown	0	0	0	0
Federal	2007	Development	0	0	0	0
Federal	2007	Fire	0.27	0	0.7	1
Federal	2007	Forest harvest	74.45	0.05	11.96	17
Federal	2007	Forest pathogen	10.41	0.01	2.11	3
Federal	2007	Other	3.29	0	1.41	2
Federal	2008	Beaver	19.08	0.01	2.11	3
Federal	2008	Blowdown	0	0	0	0
Federal	2008	Development	0	0	0	0
Federal	2008	Fire	0	0	0	0
Federal	2008	Forest harvest	57.15	0.04	3.52	5
Federal	2008	Forest pathogen	0	0	0	0
Federal	2008	Other	0	0	0	0
Federal	2009	Beaver	23.56	0.02	4.92	7
Federal	2009	Blowdown	0	0	0	0
Federal	2009	Development	0.29	0	0.7	1
Federal	2009	Fire	0	0	0	0
Federal	2009	Forest harvest	105.26	0.07	6.33	9

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Federal	2009	Forest pathogen	0	0	0	0
Federal	2009	Other	0	0	0	0
Federal	2010	Beaver	40.4	0.03	4.22	6
Federal	2010	Blowdown	0	0	0	0
Federal	2010	Development	0	0	0	0
Federal	2010	Fire	0	0	0	0
Federal	2010	Forest harvest	293.15	0.21	21.1	30
Federal	2010	Forest pathogen	0	0	0	0
Federal	2010	Other	0	0	0	0
Federal	2011	Beaver	8.53	0.01	2.81	4
Federal	2011	Blowdown	0	0	0	0
Federal	2011	Development	0	0	0	0
Federal	2011	Fire	0	0	0	0
Federal	2011	Forest harvest	274.69	0.19	18.29	26
Federal	2011	Forest pathogen	0	0	0	0
Federal	2011	Other	0	0	0	0
Federal	2012	Beaver	13.55	0.01	2.11	3
Federal	2012	Blowdown	0	0	0	0
Federal	2012	Development	0	0	0	0
Federal	2012	Fire	2.07	0	0.7	1
Federal	2012	Forest harvest	383.87	0.27	40.1	57
Federal	2012	Forest pathogen	62.28	0.04	0.7	1
Federal	2012	Other	0	0	0	0
Federal	2013	Beaver	7.38	0.01	2.11	3
Federal	2013	Blowdown	0	0	0	0
Federal	2013	Development	0	0	0	0
Federal	2013	Fire	20.39	0.01	0.7	1
Federal	2013	Forest harvest	252.53	0.18	28.84	41
Federal	2013	Forest pathogen	0	0	0	0
Federal	2013	Other	0	0	0	0
Indian reserve	1995	Beaver	0	0	0	0
Indian reserve	1995	Blowdown	0	0	0	0
Indian reserve	1995	Development	0	0	0	0
Indian reserve	1995	Fire	0	0	0	0
Indian reserve	1995	Forest harvest	0	0	0	0
Indian reserve	1995	Forest pathogen	0	0	0	0
Indian reserve	1995	Other	0	0	0	0
Indian reserve	1996	Beaver	0	0	0	0
Indian reserve	1996	Blowdown	0	0	0	0
Indian reserve	1996	Development	0.97	0.04	38.57	1

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Indian reserve	1996	Fire	0	0	0	0
Indian reserve	1996	Forest harvest	0	0	0	0
Indian reserve	1996	Forest pathogen	0	0	0	0
Indian reserve	1996	Other	0	0	0	0
Indian reserve	1997	Beaver	0	0	0	0
Indian reserve	1997	Blowdown	0	0	0	0
Indian reserve	1997	Development	1.22	0.05	38.57	1
Indian reserve	1997	Fire	0	0	0	0
Indian reserve	1997	Forest harvest	0	0	0	0
Indian reserve	1997	Forest pathogen	0	0	0	0
Indian reserve	1997	Other	0	0	0	0
Indian reserve	1998	Beaver	0	0	0	0
Indian reserve	1998	Blowdown	0	0	0	0
Indian reserve	1998	Development	0	0	0	0
Indian reserve	1998	Fire	0	0	0	0
Indian reserve	1998	Forest harvest	0	0	0	0
Indian reserve	1998	Forest pathogen	0	0	0	0
Indian reserve	1998	Other	0	0	0	0
Indian reserve	1999	Beaver	0	0	0	0
Indian reserve	1999	Blowdown	0	0	0	0
Indian reserve	1999	Development	0	0	0	0
Indian reserve	1999	Fire	0	0	0	0
Indian reserve	1999	Forest harvest	0	0	0	0
Indian reserve	1999	Forest pathogen	0	0	0	0
Indian reserve	1999	Other	0	0	0	0
Indian reserve	2000	Beaver	1.08	0.04	38.57	1
Indian reserve	2000	Blowdown	0	0	0	0
Indian reserve	2000	Development	0	0	0	0
Indian reserve	2000	Fire	0	0	0	0
Indian reserve	2000	Forest harvest	0	0	0	0
Indian reserve	2000	Forest pathogen	0	0	0	0
Indian reserve	2000	Other	0	0	0	0
Indian reserve	2001	Beaver	0	0	0	0
Indian reserve	2001	Blowdown	0	0	0	0
Indian reserve	2001	Development	0	0	0	0
Indian reserve	2001	Fire	0	0	0	0
Indian reserve	2001	Forest harvest	0	0	0	0
Indian reserve	2001	Forest pathogen	0	0	0	0
Indian reserve	2001	Other	0	0	0	0
Indian reserve	2002	Beaver	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Indian reserve	2002	Blowdown	0	0	0	0
Indian reserve	2002	Development	0	0	0	0
Indian reserve	2002	Fire	0	0	0	0
Indian reserve	2002	Forest harvest	0	0	0	0
Indian reserve	2002	Forest pathogen	0	0	0	0
Indian reserve	2002	Other	0	0	0	0
Indian reserve	2003	Beaver	0	0	0	0
Indian reserve	2003	Blowdown	0	0	0	0
Indian reserve	2003	Development	8.14	0.31	77.15	2
Indian reserve	2003	Fire	0	0	0	0
Indian reserve	2003	Forest harvest	3.87	0.15	38.57	1
Indian reserve	2003	Forest pathogen	0	0	0	0
Indian reserve	2003	Other	0	0	0	0
Indian reserve	2004	Beaver	0	0	0	0
Indian reserve	2004	Blowdown	0	0	0	0
Indian reserve	2004	Development	2.35	0.09	77.15	2
Indian reserve	2004	Fire	0	0	0	0
Indian reserve	2004	Forest harvest	3.33	0.13	77.15	2
Indian reserve	2004	Forest pathogen	0	0	0	0
Indian reserve	2004	Other	0	0	0	0
Indian reserve	2005	Beaver	0	0	0	0
Indian reserve	2005	Blowdown	0	0	0	0
Indian reserve	2005	Development	0	0	0	0
Indian reserve	2005	Fire	0	0	0	0
Indian reserve	2005	Forest harvest	9.19	0.35	38.57	1
Indian reserve	2005	Forest pathogen	0	0	0	0
Indian reserve	2005	Other	0	0	0	0
Indian reserve	2006	Beaver	0	0	0	0
Indian reserve	2006	Blowdown	0	0	0	0
Indian reserve	2006	Development	0.5	0.02	77.15	2
Indian reserve	2006	Fire	0	0	0	0
Indian reserve	2006	Forest harvest	0	0	0	0
Indian reserve	2006	Forest pathogen	0	0	0	0
Indian reserve	2006	Other	0	0	0	0
Indian reserve	2007	Beaver	0	0	0	0
Indian reserve	2007	Blowdown	0	0	0	0
Indian reserve	2007	Development	2.11	0.08	38.57	1
Indian reserve	2007	Fire	0	0	0	0
Indian reserve	2007	Forest harvest	0	0	0	0
Indian reserve	2007	Forest pathogen	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Indian reserve	2007	Other	0	0	0	0
Indian reserve	2008	Beaver	3.28	0.13	38.57	1
Indian reserve	2008	Blowdown	0	0	0	0
Indian reserve	2008	Development	2.27	0.09	38.57	1
Indian reserve	2008	Fire	0	0	0	0
Indian reserve	2008	Forest harvest	0	0	0	0
Indian reserve	2008	Forest pathogen	0	0	0	0
Indian reserve	2008	Other	0	0	0	0
Indian reserve	2009	Beaver	0	0	0	0
Indian reserve	2009	Blowdown	0	0	0	0
Indian reserve	2009	Development	11.91	0.46	77.15	2
Indian reserve	2009	Fire	0	0	0	0
Indian reserve	2009	Forest harvest	0	0	0	0
Indian reserve	2009	Forest pathogen	0	0	0	0
Indian reserve	2009	Other	0	0	0	0
Indian reserve	2010	Beaver	0	0	0	0
Indian reserve	2010	Blowdown	0	0	0	0
Indian reserve	2010	Development	0	0	0	0
Indian reserve	2010	Fire	0	0	0	0
Indian reserve	2010	Forest harvest	0	0	0	0
Indian reserve	2010	Forest pathogen	0	0	0	0
Indian reserve	2010	Other	0	0	0	0
Indian reserve	2011	Beaver	0	0	0	0
Indian reserve	2011	Blowdown	0	0	0	0
Indian reserve	2011	Development	1.7	0.07	38.57	1
Indian reserve	2011	Fire	0	0	0	0
Indian reserve	2011	Forest harvest	0	0	0	0
Indian reserve	2011	Forest pathogen	0	0	0	0
Indian reserve	2011	Other	0	0	0	0
Indian reserve	2012	Beaver	0	0	0	0
Indian reserve	2012	Blowdown	0	0	0	0
Indian reserve	2012	Development	1.7	0.07	38.57	1
Indian reserve	2012	Fire	0	0	0	0
Indian reserve	2012	Forest harvest	0	0	0	0
Indian reserve	2012	Forest pathogen	0	0	0	0
Indian reserve	2012	Other	0	0	0	0
Indian reserve	2013	Beaver	0.9	0.03	38.57	1
Indian reserve	2013	Blowdown	0	0	0	0
Indian reserve	2013	Development	0	0	0	0
Indian reserve	2013	Fire	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Indian reserve	2013	Forest harvest	0	0	0	0
Indian reserve	2013	Forest pathogen	0	0	0	0
Indian reserve	2013	Other	0	0	0	0
Patent land	1995	Beaver	0	0	0	0
Patent land	1995	Blowdown	0	0	0	0
Patent land	1995	Development	0	0	0	0
Patent land	1995	Fire	0	0	0	0
Patent land	1995	Forest harvest	40.41	1.08	26.85	1
Patent land	1995	Forest pathogen	0	0	0	0
Patent land	1995	Other	0	0	0	0
Patent land	1996	Beaver	0	0	0	0
Patent land	1996	Blowdown	0	0	0	0
Patent land	1996	Development	0	0	0	0
Patent land	1996	Fire	0	0	0	0
Patent land	1996	Forest harvest	0	0	0	0
Patent land	1996	Forest pathogen	0	0	0	0
Patent land	1996	Other	0	0	0	0
Patent land	1997	Beaver	0	0	0	0
Patent land	1997	Blowdown	0	0	0	0
Patent land	1997	Development	0.2	0.01	26.85	1
Patent land	1997	Fire	0	0	0	0
Patent land	1997	Forest harvest	0	0	0	0
Patent land	1997	Forest pathogen	0	0	0	0
Patent land	1997	Other	0	0	0	0
Patent land	1998	Beaver	0	0	0	0
Patent land	1998	Blowdown	0	0	0	0
Patent land	1998	Development	0.99	0.03	26.85	1
Patent land	1998	Fire	0	0	0	0
Patent land	1998	Forest harvest	3.69	0.1	26.85	1
Patent land	1998	Forest pathogen	0	0	0	0
Patent land	1998	Other	0	0	0	0
Patent land	1999	Beaver	0	0	0	0
Patent land	1999	Blowdown	0	0	0	0
Patent land	1999	Development	0	0	0	0
Patent land	1999	Fire	0	0	0	0
Patent land	1999	Forest harvest	20.07	0.54	161.08	6
Patent land	1999	Forest pathogen	0	0	0	0
Patent land	1999	Other	0	0	0	0
Patent land	2000	Beaver	0	0	0	0
Patent land	2000	Blowdown	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Patent land	2000	Development	0	0	0	0
Patent land	2000	Fire	0	0	0	0
Patent land	2000	Forest harvest	0	0	0	0
Patent land	2000	Forest pathogen	1.26	0.03	26.85	1
Patent land	2000	Other	0	0	0	0
Patent land	2001	Beaver	0	0	0	0
Patent land	2001	Blowdown	0	0	0	0
Patent land	2001	Development	0	0	0	0
Patent land	2001	Fire	0	0	0	0
Patent land	2001	Forest harvest	11.09	0.3	26.85	1
Patent land	2001	Forest pathogen	0	0	0	0
Patent land	2001	Other	0	0	0	0
Patent land	2002	Beaver	1.44	0.04	26.85	1
Patent land	2002	Blowdown	0	0	0	0
Patent land	2002	Development	1.07	0.03	26.85	1
Patent land	2002	Fire	0	0	0	0
Patent land	2002	Forest harvest	0	0	0	0
Patent land	2002	Forest pathogen	0	0	0	0
Patent land	2002	Other	0	0	0	0
Patent land	2003	Beaver	0	0	0	0
Patent land	2003	Blowdown	0	0	0	0
Patent land	2003	Development	0	0	0	0
Patent land	2003	Fire	0	0	0	0
Patent land	2003	Forest harvest	20.09	0.54	26.85	1
Patent land	2003	Forest pathogen	0	0	0	0
Patent land	2003	Other	0	0	0	0
Patent land	2004	Beaver	0	0	0	0
Patent land	2004	Blowdown	0	0	0	0
Patent land	2004	Development	2.59	0.07	107.39	4
Patent land	2004	Fire	0	0	0	0
Patent land	2004	Forest harvest	69.64	1.87	107.39	4
Patent land	2004	Forest pathogen	0	0	0	0
Patent land	2004	Other	0	0	0	0
Patent land	2005	Beaver	0	0	0	0
Patent land	2005	Blowdown	0	0	0	0
Patent land	2005	Development	0	0	0	0
Patent land	2005	Fire	0	0	0	0
Patent land	2005	Forest harvest	22.06	0.59	80.54	3
Patent land	2005	Forest pathogen	0	0	0	0
Patent land	2005	Other	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Patent land	2006	Beaver	0	0	0	0
Patent land	2006	Blowdown	0	0	0	0
Patent land	2006	Development	0	0	0	0
Patent land	2006	Fire	0	0	0	0
Patent land	2006	Forest harvest	0	0	0	0
Patent land	2006	Forest pathogen	0	0	0	0
Patent land	2006	Other	0	0	0	0
Patent land	2007	Beaver	0	0	0	0
Patent land	2007	Blowdown	0	0	0	0
Patent land	2007	Development	0.35	0.01	26.85	1
Patent land	2007	Fire	0	0	0	0
Patent land	2007	Forest harvest	0	0	0	0
Patent land	2007	Forest pathogen	0	0	0	0
Patent land	2007	Other	0	0	0	0
Patent land	2008	Beaver	0	0	0	0
Patent land	2008	Blowdown	0	0	0	0
Patent land	2008	Development	2.48	0.07	53.69	2
Patent land	2008	Fire	0	0	0	0
Patent land	2008	Forest harvest	0	0	0	0
Patent land	2008	Forest pathogen	0	0	0	0
Patent land	2008	Other	0	0	0	0
Patent land	2009	Beaver	0	0	0	0
Patent land	2009	Blowdown	0	0	0	0
Patent land	2009	Development	1.12	0.03	53.69	2
Patent land	2009	Fire	0	0	0	0
Patent land	2009	Forest harvest	0	0	0	0
Patent land	2009	Forest pathogen	0	0	0	0
Patent land	2009	Other	0	0	0	0
Patent land	2010	Beaver	1.26	0.03	26.85	1
Patent land	2010	Blowdown	0	0	0	0
Patent land	2010	Development	0	0	0	0
Patent land	2010	Fire	0	0	0	0
Patent land	2010	Forest harvest	2.52	0.07	26.85	1
Patent land	2010	Forest pathogen	0	0	0	0
Patent land	2010	Other	0	0	0	0
Patent land	2011	Beaver	0	0	0	0
Patent land	2011	Blowdown	0	0	0	0
Patent land	2011	Development	0	0	0	0
Patent land	2011	Fire	0	0	0	0
Patent land	2011	Forest harvest	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Patent land	2011	Forest pathogen	0	0	0	0
Patent land	2011	Other	0	0	0	0
Patent land	2012	Beaver	0	0	0	0
Patent land	2012	Blowdown	0	0	0	0
Patent land	2012	Development	0.89	0.02	26.85	1
Patent land	2012	Fire	0	0	0	0
Patent land	2012	Forest harvest	0	0	0	0
Patent land	2012	Forest pathogen	0	0	0	0
Patent land	2012	Other	0	0	0	0
Patent land	2013	Beaver	0	0	0	0
Patent land	2013	Blowdown	0	0	0	0
Patent land	2013	Development	0	0	0	0
Patent land	2013	Fire	0	0	0	0
Patent land	2013	Forest harvest	6.12	0.16	26.85	1
Patent land	2013	Forest pathogen	0	0	0	0
Patent land	2013	Other	0	0	0	0
Private	1995	Beaver	4.51	0.01	8.26	4
Private	1995	Blowdown	0	0	0	0
Private	1995	Development	7.19	0.01	12.38	6
Private	1995	Fire	0	0	0	0
Private	1995	Forest harvest	420.73	0.87	111.46	54
Private	1995	Forest pathogen	0	0	0	0
Private	1995	Other	0	0	0	0
Private	1996	Beaver	7.91	0.02	12.38	6
Private	1996	Blowdown	0	0	0	0
Private	1996	Development	3.13	0.01	8.26	4
Private	1996	Fire	0	0	0	0
Private	1996	Forest harvest	524.68	1.08	154.8	75
Private	1996	Forest pathogen	0	0	0	0
Private	1996	Other	0	0	0	0
Private	1997	Beaver	15.79	0.03	18.58	9
Private	1997	Blowdown	0	0	0	0
Private	1997	Development	19.77	0.04	18.58	9
Private	1997	Fire	1.08	0	2.06	1
Private	1997	Forest harvest	577.18	1.19	158.93	77
Private	1997	Forest pathogen	0	0	0	0
Private	1997	Other	0	0	0	0
Private	1998	Beaver	8.02	0.02	4.13	2
Private	1998	Blowdown	0	0	0	0
Private	1998	Development	16.36	0.03	16.51	8

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Private	1998	Fire	0	0	0	0
Private	1998	Forest harvest	523.35	1.08	158.93	77
Private	1998	Forest pathogen	0	0	0	0
Private	1998	Other	0	0	0	0
Private	1999	Beaver	1.13	0	2.06	1
Private	1999	Blowdown	177.34	0.37	49.54	24
Private	1999	Development	4.91	0.01	4.13	2
Private	1999	Fire	0	0	0	0
Private	1999	Forest harvest	290.11	0.6	70.18	34
Private	1999	Forest pathogen	14.49	0.03	14.45	7
Private	1999	Other	0	0	0	0
Private	2000	Beaver	6.8	0.01	4.13	2
Private	2000	Blowdown	0	0	0	0
Private	2000	Development	12.6	0.03	16.51	8
Private	2000	Fire	0	0	0	0
Private	2000	Forest harvest	762.74	1.57	173.38	84
Private	2000	Forest pathogen	333.2	0.69	208.46	101
Private	2000	Other	0	0	0	0
Private	2001	Beaver	16.3	0.03	12.38	6
Private	2001	Blowdown	0	0	0	0
Private	2001	Development	36.8	0.08	18.58	9
Private	2001	Fire	0	0	0	0
Private	2001	Forest harvest	262.43	0.54	90.82	44
Private	2001	Forest pathogen	113.76	0.23	55.73	27
Private	2001	Other	0	0	0	0
Private	2002	Beaver	3.49	0.01	4.13	2
Private	2002	Blowdown	2.46	0.01	4.13	2
Private	2002	Development	4.81	0.01	8.26	4
Private	2002	Fire	0	0	0	0
Private	2002	Forest harvest	423.29	0.87	97.01	47
Private	2002	Forest pathogen	0	0	0	0
Private	2002	Other	0	0	0	0
Private	2003	Beaver	0	0	0	0
Private	2003	Blowdown	0	0	0	0
Private	2003	Development	14.07	0.03	20.64	10
Private	2003	Fire	0	0	0	0
Private	2003	Forest harvest	453.62	0.94	99.07	48
Private	2003	Forest pathogen	0	0	0	0
Private	2003	Other	0	0	0	0
Private	2004	Beaver	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Private	2004	Blowdown	0	0	0	0
Private	2004	Development	15.41	0.03	18.58	9
Private	2004	Fire	0	0	0	0
Private	2004	Forest harvest	441.93	0.91	123.84	60
Private	2004	Forest pathogen	0	0	0	0
Private	2004	Other	0	0	0	0
Private	2005	Beaver	15.17	0.03	8.26	4
Private	2005	Blowdown	0	0	0	0
Private	2005	Development	4.6	0.01	8.26	4
Private	2005	Fire	0	0	0	0
Private	2005	Forest harvest	419.21	0.87	103.2	50
Private	2005	Forest pathogen	0	0	0	0
Private	2005	Other	0	0	0	0
Private	2006	Beaver	2.34	0	2.06	1
Private	2006	Blowdown	0	0	0	0
Private	2006	Development	15.3	0.03	22.7	11
Private	2006	Fire	4.5	0.01	2.06	1
Private	2006	Forest harvest	400.89	0.83	99.07	48
Private	2006	Forest pathogen	0	0	0	0
Private	2006	Other	0	0	0	0
Private	2007	Beaver	0	0	0	0
Private	2007	Blowdown	0	0	0	0
Private	2007	Development	2.47	0.01	6.19	3
Private	2007	Fire	0	0	0	0
Private	2007	Forest harvest	287.47	0.59	78.43	38
Private	2007	Forest pathogen	0	0	0	0
Private	2007	Other	0	0	0	0
Private	2008	Beaver	0	0	0	0
Private	2008	Blowdown	0	0	0	0
Private	2008	Development	1.62	0	2.06	1
Private	2008	Fire	0	0	0	0
Private	2008	Forest harvest	134.5	0.28	26.83	13
Private	2008	Forest pathogen	0	0	0	0
Private	2008	Other	0	0	0	0
Private	2009	Beaver	1.7	0	2.06	1
Private	2009	Blowdown	0	0	0	0
Private	2009	Development	12.87	0.03	4.13	2
Private	2009	Fire	0	0	0	0
Private	2009	Forest harvest	180.6	0.37	37.15	18
Private	2009	Forest pathogen	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Private	2009	Other	1.3	0	2.06	1
Private	2010	Beaver	1.08	0	2.06	1
Private	2010	Blowdown	0	0	0	0
Private	2010	Development	2.11	0	4.13	2
Private	2010	Fire	0	0	0	0
Private	2010	Forest harvest	313.78	0.65	70.18	34
Private	2010	Forest pathogen	0	0	0	0
Private	2010	Other	0	0	0	0
Private	2011	Beaver	1.55	0	2.06	1
Private	2011	Blowdown	0	0	0	0
Private	2011	Development	1.26	0	4.13	2
Private	2011	Fire	0	0	0	0
Private	2011	Forest harvest	321.18	0.66	57.79	28
Private	2011	Forest pathogen	0	0	0	0
Private	2011	Other	0	0	0	0
Private	2012	Beaver	9.58	0.02	2.06	1
Private	2012	Blowdown	0	0	0	0
Private	2012	Development	10.8	0.02	8.26	4
Private	2012	Fire	0	0	0	0
Private	2012	Forest harvest	380.45	0.79	84.62	41
Private	2012	Forest pathogen	0	0	0	0
Private	2012	Other	0	0	0	0
Private	2013	Beaver	0	0	0	0
Private	2013	Blowdown	0	0	0	0
Private	2013	Development	0	0	0	0
Private	2013	Fire	0	0	0	0
Private	2013	Forest harvest	109.06	0.23	37.15	18
Private	2013	Forest pathogen	0	0	0	0
Private	2013	Other	0	0	0	0
Private Industrial	1995	Beaver	0	0	0	0
Private Industrial	1995	Blowdown	0	0	0	0
Private Industrial	1995	Development	0	0	0	0
Private Industrial	1995	Fire	0	0	0	0
Private Industrial	1995	Forest harvest	157.38	0.68	90.62	21
Private Industrial	1995	Forest pathogen	0	0	0	0
Private Industrial	1995	Other	0	0	0	0
Private Industrial	1996	Beaver	7.81	0.03	8.63	2
Private Industrial	1996	Blowdown	0	0	0	0
Private Industrial	1996	Development	0	0	0	0
Private Industrial	1996	Fire	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Private Industrial	1996	Forest harvest	172.41	0.74	86.3	20
Private Industrial	1996	Forest pathogen	0	0	0	0
Private Industrial	1996	Other	0	0	0	0
Private Industrial	1997	Beaver	4.64	0.02	21.58	5
Private Industrial	1997	Blowdown	0	0	0	0
Private Industrial	1997	Development	1.37	0.01	4.32	1
Private Industrial	1997	Fire	0	0	0	0
Private Industrial	1997	Forest harvest	389.55	1.68	129.45	30
Private Industrial	1997	Forest pathogen	0	0	0	0
Private Industrial	1997	Other	0	0	0	0
Private Industrial	1998	Beaver	3.47	0.01	8.63	2
Private Industrial	1998	Blowdown	0	0	0	0
Private Industrial	1998	Development	1.7	0.01	4.32	1
Private Industrial	1998	Fire	0	0	0	0
Private Industrial	1998	Forest harvest	316.63	1.37	138.08	32
Private Industrial	1998	Forest pathogen	0	0	0	0
Private Industrial	1998	Other	0	0	0	0
Private Industrial	1999	Beaver	0	0	0	0
Private Industrial	1999	Blowdown	22.41	0.1	8.63	2
Private Industrial	1999	Development	0	0	0	0
Private Industrial	1999	Fire	0	0	0	0
Private Industrial	1999	Forest harvest	213.46	0.92	64.73	15
Private Industrial	1999	Forest pathogen	6.21	0.03	8.63	2
Private Industrial	1999	Other	0	0	0	0
Private Industrial	2000	Beaver	5.54	0.02	17.26	4
Private Industrial	2000	Blowdown	0	0	0	0
Private Industrial	2000	Development	0	0	0	0
Private Industrial	2000	Fire	0	0	0	0
Private Industrial	2000	Forest harvest	456.91	1.97	129.45	30
Private Industrial	2000	Forest pathogen	236.67	1.02	241.64	56
Private Industrial	2000	Other	0	0	0	0
Private Industrial	2001	Beaver	21.68	0.09	12.95	3
Private Industrial	2001	Blowdown	0	0	0	0
Private Industrial	2001	Development	0.5	0	4.32	1
Private Industrial	2001	Fire	0	0	0	0
Private Industrial	2001	Forest harvest	219.47	0.95	73.36	17
Private Industrial	2001	Forest pathogen	28.98	0.13	51.78	12
Private Industrial	2001	Other	0	0	0	0
Private Industrial	2002	Beaver	1.7	0.01	4.32	1
Private Industrial	2002	Blowdown	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Private Industrial	2002	Development	0	0	0	0
Private Industrial	2002	Fire	0	0	0	0
Private Industrial	2002	Forest harvest	105.73	0.46	64.73	15
Private Industrial	2002	Forest pathogen	0	0	0	0
Private Industrial	2002	Other	0	0	0	0
Private Industrial	2003	Beaver	0	0	0	0
Private Industrial	2003	Blowdown	0	0	0	0
Private Industrial	2003	Development	0	0	0	0
Private Industrial	2003	Fire	0	0	0	0
Private Industrial	2003	Forest harvest	381.83	1.65	90.62	21
Private Industrial	2003	Forest pathogen	0	0	0	0
Private Industrial	2003	Other	0	0	0	0
Private Industrial	2004	Beaver	1.01	0	4.32	1
Private Industrial	2004	Blowdown	0	0	0	0
Private Industrial	2004	Development	0	0	0	0
Private Industrial	2004	Fire	0	0	0	0
Private Industrial	2004	Forest harvest	317.63	1.37	120.82	28
Private Industrial	2004	Forest pathogen	0	0	0	0
Private Industrial	2004	Other	0	0	0	0
Private Industrial	2005	Beaver	0	0	0	0
Private Industrial	2005	Blowdown	0	0	0	0
Private Industrial	2005	Development	0	0	0	0
Private Industrial	2005	Fire	0	0	0	0
Private Industrial	2005	Forest harvest	530.55	2.29	163.97	38
Private Industrial	2005	Forest pathogen	0	0	0	0
Private Industrial	2005	Other	0	0	0	0
Private Industrial	2006	Beaver	0	0	0	0
Private Industrial	2006	Blowdown	0	0	0	0
Private Industrial	2006	Development	1.26	0.01	4.32	1
Private Industrial	2006	Fire	0	0	0	0
Private Industrial	2006	Forest harvest	271.67	1.17	116.51	27
Private Industrial	2006	Forest pathogen	0	0	0	0
Private Industrial	2006	Other	0	0	0	0
Private Industrial	2007	Beaver	0	0	0	0
Private Industrial	2007	Blowdown	0	0	0	0
Private Industrial	2007	Development	0	0	0	0
Private Industrial	2007	Fire	0	0	0	0
Private Industrial	2007	Forest harvest	408.09	1.76	103.56	24
Private Industrial	2007	Forest pathogen	0	0	0	0
Private Industrial	2007	Other	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Private Industrial	2008	Beaver	0	0	0	0
Private Industrial	2008	Blowdown	0	0	0	0
Private Industrial	2008	Development	2	0.01	4.32	1
Private Industrial	2008	Fire	0	0	0	0
Private Industrial	2008	Forest harvest	234.02	1.01	69.04	16
Private Industrial	2008	Forest pathogen	0	0	0	0
Private Industrial	2008	Other	0	0	0	0
Private Industrial	2009	Beaver	0	0	0	0
Private Industrial	2009	Blowdown	0	0	0	0
Private Industrial	2009	Development	0	0	0	0
Private Industrial	2009	Fire	0	0	0	0
Private Industrial	2009	Forest harvest	325.69	1.41	120.82	28
Private Industrial	2009	Forest pathogen	0	0	0	0
Private Industrial	2009	Other	0	0	0	0
Private Industrial	2010	Beaver	2.66	0.01	8.63	2
Private Industrial	2010	Blowdown	0	0	0	0
Private Industrial	2010	Development	0	0	0	0
Private Industrial	2010	Fire	0	0	0	0
Private Industrial	2010	Forest harvest	181.41	0.78	103.56	24
Private Industrial	2010	Forest pathogen	0	0	0	0
Private Industrial	2010	Other	0	0	0	0
Private Industrial	2011	Beaver	0	0	0	0
Private Industrial	2011	Blowdown	0	0	0	0
Private Industrial	2011	Development	0	0	0	0
Private Industrial	2011	Fire	3.78	0.02	4.32	1
Private Industrial	2011	Forest harvest	215.58	0.93	77.67	18
Private Industrial	2011	Forest pathogen	0	0	0	0
Private Industrial	2011	Other	0	0	0	0
Private Industrial	2012	Beaver	1.83	0.01	4.32	1
Private Industrial	2012	Blowdown	0	0	0	0
Private Industrial	2012	Development	0	0	0	0
Private Industrial	2012	Fire	0	0	0	0
Private Industrial	2012	Forest harvest	447.44	1.93	99.25	23
Private Industrial	2012	Forest pathogen	0	0	0	0
Private Industrial	2012	Other	0	0	0	0
Private Industrial	2013	Beaver	1.05	0	4.32	1
Private Industrial	2013	Blowdown	0	0	0	0
Private Industrial	2013	Development	0	0	0	0
Private Industrial	2013	Fire	0	0	0	0
Private Industrial	2013	Forest harvest	156.38	0.67	133.77	31

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Private Industrial	2013	Forest pathogen	0	0	0	0
Private Industrial	2013	Other	0	0	0	0
State	1995	Beaver	13.1	0.01	9.77	10
State	1995	Blowdown	0	0	0	0
State	1995	Development	0	0	0	0
State	1995	Fire	0	0	0	0
State	1995	Forest harvest	748.3	0.73	73.29	75
State	1995	Forest pathogen	0	0	0	0
State	1995	Other	0	0	0	0
State	1996	Beaver	7.78	0.01	7.82	8
State	1996	Blowdown	0	0	0	0
State	1996	Development	2.16	0	0.98	1
State	1996	Fire	0	0	0	0
State	1996	Forest harvest	795.39	0.78	113.36	116
State	1996	Forest pathogen	0	0	0	0
State	1996	Other	0	0	0	0
State	1997	Beaver	21.77	0.02	21.5	22
State	1997	Blowdown	0	0	0	0
State	1997	Development	1.58	0	1.95	2
State	1997	Fire	0	0	0	0
State	1997	Forest harvest	1422.13	1.39	158.31	162
State	1997	Forest pathogen	0	0	0	0
State	1997	Other	0	0	0	0
State	1998	Beaver	15.95	0.02	5.86	6
State	1998	Blowdown	0	0	0	0
State	1998	Development	0	0	0	0
State	1998	Fire	0	0	0	0
State	1998	Forest harvest	911.89	0.89	138.77	142
State	1998	Forest pathogen	0	0	0	0
State	1998	Other	3.06	0	0.98	1
State	1999	Beaver	0	0	0	0
State	1999	Blowdown	447.29	0.44	62.54	64
State	1999	Development	0	0	0	0
State	1999	Fire	0	0	0	0
State	1999	Forest harvest	814.19	0.8	92.84	95
State	1999	Forest pathogen	16.92	0.02	4.89	5
State	1999	Other	0	0	0	0
State	2000	Beaver	14.77	0.01	8.8	9
State	2000	Blowdown	0	0	0	0
State	2000	Development	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
State	2000	Fire	0	0	0	0
State	2000	Forest harvest	1319.86	1.29	167.11	171
State	2000	Forest pathogen	797.37	0.78	186.65	191
State	2000	Other	3.46	0	0.98	1
State	2001	Beaver	42.1	0.04	13.68	14
State	2001	Blowdown	0	0	0	0
State	2001	Development	0	0	0	0
State	2001	Fire	0	0	0	0
State	2001	Forest harvest	1168.44	1.14	98.7	101
State	2001	Forest pathogen	73.2	0.07	21.5	22
State	2001	Other	0	0	0	0
State	2002	Beaver	2.95	0	3.91	4
State	2002	Blowdown	0	0	0	0
State	2002	Development	1.24	0	0.98	1
State	2002	Fire	0	0	0	0
State	2002	Forest harvest	861.09	0.84	88.93	91
State	2002	Forest pathogen	0	0	0	0
State	2002	Other	0	0	0	0
State	2003	Beaver	0.94	0	0.98	1
State	2003	Blowdown	0	0	0	0
State	2003	Development	0	0	0	0
State	2003	Fire	0	0	0	0
State	2003	Forest harvest	1178.63	1.15	138.77	142
State	2003	Forest pathogen	0	0	0	0
State	2003	Other	0	0	0	0
State	2004	Beaver	4.77	0	1.95	2
State	2004	Blowdown	0	0	0	0
State	2004	Development	22.11	0.02	0.98	1
State	2004	Fire	0	0	0	0
State	2004	Forest harvest	1113.23	1.09	111.4	114
State	2004	Forest pathogen	0	0	0	0
State	2004	Other	0	0	0	0
State	2005	Beaver	12.1	0.01	5.86	6
State	2005	Blowdown	0	0	0	0
State	2005	Development	1.14	0	1.95	2
State	2005	Fire	0	0	0	0
State	2005	Forest harvest	981.67	0.96	101.63	104
State	2005	Forest pathogen	0	0	0	0
State	2005	Other	0	0	0	0
State	2006	Beaver	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
State	2006	Blowdown	0	0	0	0
State	2006	Development	14.41	0.01	0.98	1
State	2006	Fire	35.43	0.03	7.82	8
State	2006	Forest harvest	574.59	0.56	72.32	74
State	2006	Forest pathogen	0	0	0	0
State	2006	Other	0	0	0	0
State	2007	Beaver	3.31	0	0.98	1
State	2007	Blowdown	0	0	0	0
State	2007	Development	0	0	0	0
State	2007	Fire	0	0	0	0
State	2007	Forest harvest	750.47	0.73	95.77	98
State	2007	Forest pathogen	0	0	0	0
State	2007	Other	0	0	0	0
State	2008	Beaver	0	0	0	0
State	2008	Blowdown	0	0	0	0
State	2008	Development	0	0	0	0
State	2008	Fire	0	0	0	0
State	2008	Forest harvest	490.93	0.48	50.82	52
State	2008	Forest pathogen	0	0	0	0
State	2008	Other	0	0	0	0
State	2009	Beaver	1.89	0	0.98	1
State	2009	Blowdown	0	0	0	0
State	2009	Development	16.03	0.02	2.93	3
State	2009	Fire	0	0	0	0
State	2009	Forest harvest	896.68	0.88	109.45	112
State	2009	Forest pathogen	0	0	0	0
State	2009	Other	0	0	0	0
State	2010	Beaver	5.22	0.01	1.95	2
State	2010	Blowdown	0	0	0	0
State	2010	Development	0.45	0	0.98	1
State	2010	Fire	0	0	0	0
State	2010	Forest harvest	409.49	0.4	60.59	62
State	2010	Forest pathogen	0	0	0	0
State	2010	Other	0	0	0	0
State	2011	Beaver	8.71	0.01	5.86	6
State	2011	Blowdown	0	0	0	0
State	2011	Development	0.99	0	0.98	1
State	2011	Fire	0	0	0	0
State	2011	Forest harvest	454.34	0.44	58.63	60
State	2011	Forest pathogen	0	0	0	0

Owner category 2	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
State	2011	Other	3.05	0	0.98	1
State	2012	Beaver	1.53	0	0.98	1
State	2012	Blowdown	0	0	0	0
State	2012	Development	0.86	0	0.98	1
State	2012	Fire	0	0	0	0
State	2012	Forest harvest	655.63	0.64	82.09	84
State	2012	Forest pathogen	0	0	0	0
State	2012	Other	0	0	0	0
State	2013	Beaver	1.8	0	0.98	1
State	2013	Blowdown	0	0	0	0
State	2013	Development	0	0	0	0
State	2013	Fire	0	0	0	0
State	2013	Forest harvest	260.47	0.25	39.09	40
State	2013	Forest pathogen	0	0	0	0
State	2013	Other	0	0	0	0

Table A5. Area, count of disturbances, and percent land of watershed disturbed during the analysis period. To enable equal comparison among different land areas counts were calculated as the number of disturbances per 100,000 ha.

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PA-01	1995	Beaver	0.00	0.00	0.00	0
5PA-01	1995	Blowdown	0.00	0.00	0.00	0
5PA-01	1995	Development	0.00	0.00	0.00	0
5PA-01	1995	Fire	0.00	0.00	0.00	0
5PA-01	1995	Forest harvest	0.00	0.00	0.00	0
5PA-01	1995	Forest pathogen	0.00	0.00	0.00	0
5PA-01	1995	Other	0.00	0.00	0.00	0
5PA-01	1996	Beaver	0.00	0.00	0.00	0
5PA-01	1996	Blowdown	0.00	0.00	0.00	0
5PA-01	1996	Development	0.00	0.00	0.00	0
5PA-01	1996	Fire	0.00	0.00	0.00	0
5PA-01	1996	Forest harvest	0.00	0.00	0.00	0
5PA-01	1996	Forest pathogen	0.00	0.00	0.00	0
5PA-01	1996	Other	0.00	0.00	0.00	0
5PA-01	1997	Beaver	4.32	0.02	4.73	1
5PA-01	1997	Blowdown	0.00	0.00	0.00	0
5PA-01	1997	Development	0.00	0.00	0.00	0
5PA-01	1997	Fire	0.00	0.00	0.00	0
5PA-01	1997	Forest harvest	0.00	0.00	0.00	0
5PA-01	1997	Forest pathogen	0.00	0.00	0.00	0
5PA-01	1997	Other	0.00	0.00	0.00	0
5PA-01	1998	Beaver	0.00	0.00	0.00	0
5PA-01	1998	Blowdown	0.00	0.00	0.00	0
5PA-01	1998	Development	0.00	0.00	0.00	0
5PA-01	1998	Fire	0.00	0.00	0.00	0
5PA-01	1998	Forest harvest	0.00	0.00	0.00	0
5PA-01	1998	Forest pathogen	0.00	0.00	0.00	0
5PA-01	1998	Other	0.00	0.00	0.00	0
5PA-01	1999	Beaver	4.59	0.02	4.73	1
5PA-01	1999	Blowdown	0.00	0.00	0.00	0
5PA-01	1999	Development	0.00	0.00	0.00	0
5PA-01	1999	Fire	0.00	0.00	0.00	0
5PA-01	1999	Forest harvest	0.00	0.00	0.00	0
5PA-01	1999	Forest pathogen	0.00	0.00	0.00	0
5PA-01	1999	Other	0.00	0.00	0.00	0
5PA-01	2000	Beaver	0.00	0.000	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PA-01	2000	Blowdown	0.00	0.00	0.00	0
5PA-01	2000	Development	0.00	0.00	0.00	0
5PA-01	2000	Fire	0.00	0.00	0.00	0
5PA-01	2000	Forest harvest	0.00	0.00	0.00	0
5PA-01	2000	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2000	Other	0.00	0.00	0.00	0
5PA-01	2001	Beaver	13.32	0.06	14.19	3
5PA-01	2001	Blowdown	0.00	0.00	0.00	0
5PA-01	2001	Development	0.00	0.00	0.00	0
5PA-01	2001	Fire	0.00	0.00	0.00	0
5PA-01	2001	Forest harvest	0.00	0.00	0.00	0
5PA-01	2001	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2001	Other	0.00	0.00	0.00	0
5PA-01	2002	Beaver	11.76	0.06	14.19	3
5PA-01	2002	Blowdown	26.12	0.12	14.19	3
5PA-01	2002	Development	0.00	0.00	0.00	0
5PA-01	2002	Fire	0.00	0.00	0.00	0
5PA-01	2002	Forest harvest	0.00	0.00	0.00	0
5PA-01	2002	Forest pathogen	31.10	0.15	37.84	8
5PA-01	2002	Other	0.00	0.00	0.00	0
5PA-01	2003	Beaver	2.46	0.01	9.46	2
5PA-01	2003	Blowdown	0.00	0.00	0.00	0
5PA-01	2003	Development	0.00	0.00	0.00	0
5PA-01	2003	Fire	0.00	0.00	0.00	0
5PA-01	2003	Forest harvest	0.00	0.00	0.00	0
5PA-01	2003	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2003	Other	0.00	0.00	0.00	0
5PA-01	2004	Beaver	0.00	0.00	0.00	0
5PA-01	2004	Blowdown	0.00	0.00	0.00	0
5PA-01	2004	Development	0.00	0.00	0.00	0
5PA-01	2004	Fire	0.00	0.00	0.00	0
5PA-01	2004	Forest harvest	0.00	0.00	0.00	0
5PA-01	2004	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2004	Other	0.00	0.00	0.00	0
5PA-01	2005	Beaver	0.00	0.00	0.00	0
5PA-01	2005	Blowdown	0.00	0.00	0.00	0
5PA-01	2005	Development	0.00	0.00	0.00	0
5PA-01	2005	Fire	0.00	0.00	0.00	0
5PA-01	2005	Forest harvest	0.00	0.00	0.00	0
5PA-01	2005	Forest pathogen	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PA-01	2005	Other	0.00	0.00	0.00	0
5PA-01	2006	Beaver	0.00	0.00	0.00	0
5PA-01	2006	Blowdown	0.00	0.00	0.00	0
5PA-01	2006	Development	0.00	0.00	0.00	0
5PA-01	2006	Fire	0.00	0.00	0.00	0
5PA-01	2006	Forest harvest	0.00	0.00	0.00	0
5PA-01	2006	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2006	Other	0.00	0.00	0.00	0
5PA-01	2007	Beaver	0.00	0.00	0.00	0
5PA-01	2007	Blowdown	0.00	0.00	0.00	0
5PA-01	2007	Development	0.00	0.00	0.00	0
5PA-01	2007	Fire	0.00	0.00	0.00	0
5PA-01	2007	Forest harvest	0.00	0.00	0.00	0
5PA-01	2007	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2007	Other	0.00	0.00	0.00	0
5PA-01	2008	Beaver	3.28	0.02	4.73	1
5PA-01	2008	Blowdown	0.00	0.00	0.00	0
5PA-01	2008	Development	0.00	0.00	0.00	0
5PA-01	2008	Fire	0.00	0.00	0.00	0
5PA-01	2008	Forest harvest	0.00	0.00	0.00	0
5PA-01	2008	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2008	Other	0.00	0.00	0.00	0
5PA-01	2009	Beaver	15.17	0.07	14.19	3
5PA-01	2009	Blowdown	0.00	0.00	0.00	0
5PA-01	2009	Development	0.00	0.00	0.00	0
5PA-01	2009	Fire	0.00	0.00	0.00	0
5PA-01	2009	Forest harvest	0.00	0.00	0.00	0
5PA-01	2009	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2009	Other	0.99	0.00	4.73	1
5PA-01	2010	Beaver	7.65	0.04	9.46	2
5PA-01	2010	Blowdown	0.00	0.00	0.00	0
5PA-01	2010	Development	0.00	0.00	0.00	0
5PA-01	2010	Fire	0.00	0.00	0.00	0
5PA-01	2010	Forest harvest	43.18	0.20	4.73	1
5PA-01	2010	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2010	Other	0.00	0.00	0.00	0
5PA-01	2011	Beaver	6.08	0.03	14.19	3
5PA-01	2011	Blowdown	0.00	0.00	0.00	0
5PA-01	2011	Development	0.00	0.00	0.00	0
5PA-01	2011	Fire	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PA-01	2011	Forest harvest	0.00	0.00	0.00	0
5PA-01	2011	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2011	Other	0.00	0.00	0.00	0
5PA-01	2012	Beaver	0.00	0.00	0.00	0
5PA-01	2012	Blowdown	0.00	0.00	0.00	0
5PA-01	2012	Development	0.00	0.00	0.00	0
5PA-01	2012	Fire	0.00	0.00	0.00	0
5PA-01	2012	Forest harvest	0.00	0.00	0.00	0
5PA-01	2012	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2012	Other	0.00	0.00	0.00	0
5PA-01	2013	Beaver	0.00	0.00	0.00	0
5PA-01	2013	Blowdown	0.00	0.00	0.00	0
5PA-01	2013	Development	0.00	0.00	0.00	0
5PA-01	2013	Fire	0.00	0.00	0.00	0
5PA-01	2013	Forest harvest	0.00	0.00	0.00	0
5PA-01	2013	Forest pathogen	0.00	0.00	0.00	0
5PA-01	2013	Other	0.00	0.00	0.00	0
5PB-18	1995	Beaver	10.62	0.01	4.16	3
5PB-18	1995	Blowdown	0.00	0.00	0.00	0
5PB-18	1995	Development	0.00	0.00	0.00	0
5PB-18	1995	Fire	0.00	0.00	0.00	0
5PB-18	1995	Forest harvest	440.45	0.61	24.99	18
5PB-18	1995	Forest pathogen	0.00	0.00	0.00	0
5PB-18	1995	Other	2.57	0.00	1.39	1
5PB-18	1996	Beaver	9.20	0.01	2.78	2
5PB-18	1996	Blowdown	0.00	0.00	0.00	0
5PB-18	1996	Development	0.97	0.00	1.39	1
5PB-18	1996	Fire	0.00	0.00	0.00	0
5PB-18	1996	Forest harvest	212.69	0.30	15.27	11
5PB-18	1996	Forest pathogen	0.00	0.00	0.00	0
5PB-18	1996	Other	0.00	0.00	0.00	0
5PB-18	1997	Beaver	6.30	0.01	1.39	1
5PB-18	1997	Blowdown	0.00	0.00	0.00	0
5PB-18	1997	Development	12.39	0.02	6.94	5
5PB-18	1997	Fire	0.00	0.00	0.00	0
5PB-18	1997	Forest harvest	881.68	1.22	74.96	54
5PB-18	1997	Forest pathogen	0.00	0.00	0.00	0
5PB-18	1997	Other	0.00	0.00	0.00	0
5PB-18	1998	Beaver	8.64	0.01	2.78	2
5PB-18	1998	Blowdown	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PB-18	1998	Development	0.99	0.00	1.39	1
5PB-18	1998	Fire	0.00	0.00	0.00	0
5PB-18	1998	Forest harvest	628.93	0.87	56.91	41
5PB-18	1998	Forest pathogen	0.00	0.00	0.00	0
5PB-18	1998	Other	0.00	0.00	0.00	0
5PB-18	1999	Beaver	22.37	0.03	2.78	2
5PB-18	1999	Blowdown	0.00	0.00	0.00	0
5PB-18	1999	Development	0.00	0.00	0.00	0
5PB-18	1999	Fire	0.00	0.00	0.00	0
5PB-18	1999	Forest harvest	678.23	0.94	48.59	35
5PB-18	1999	Forest pathogen	0.00	0.00	0.00	0
5PB-18	1999	Other	0.00	0.00	0.00	0
5PB-18	2000	Beaver	4.99	0.01	4.16	3
5PB-18	2000	Blowdown	0.00	0.00	0.00	0
5PB-18	2000	Development	6.00	0.01	5.55	4
5PB-18	2000	Fire	0.00	0.00	0.00	0
5PB-18	2000	Forest harvest	1273.02	1.77	51.36	37
5PB-18	2000	Forest pathogen	202.88	0.28	65.24	47
5PB-18	2000	Other	0.00	0.00	0.00	0
5PB-18	2001	Beaver	96.86	0.13	22.21	16
5PB-18	2001	Blowdown	0.00	0.00	0.00	0
5PB-18	2001	Development	13.64	0.02	5.55	4
5PB-18	2001	Fire	0.00	0.00	0.00	0
5PB-18	2001	Forest harvest	468.32	0.65	33.32	24
5PB-18	2001	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2001	Other	0.00	0.00	0.00	0
5PB-18	2002	Beaver	55.50	0.08	19.43	14
5PB-18	2002	Blowdown	0.00	0.00	0.00	0
5PB-18	2002	Development	2.26	0.00	4.16	3
5PB-18	2002	Fire	0.00	0.00	0.00	0
5PB-18	2002	Forest harvest	676.83	0.94	43.03	31
5PB-18	2002	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2002	Other	0.00	0.00	0.00	0
5PB-18	2003	Beaver	21.77	0.03	5.55	4
5PB-18	2003	Blowdown	0.00	0.00	0.00	0
5PB-18	2003	Development	8.14	0.01	2.78	2
5PB-18	2003	Fire	0.00	0.00	0.00	0
5PB-18	2003	Forest harvest	1265.01	1.76	55.53	40
5PB-18	2003	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2003	Other	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PB-18	2004	Beaver	3.16	0.00	1.39	1
5PB-18	2004	Blowdown	0.00	0.00	0.00	0
5PB-18	2004	Development	6.09	0.01	9.72	7
5PB-18	2004	Fire	0.00	0.00	0.00	0
5PB-18	2004	Forest harvest	989.63	1.37	47.20	34
5PB-18	2004	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2004	Other	0.00	0.00	0.00	0
5PB-18	2005	Beaver	1.98	0.00	1.39	1
5PB-18	2005	Blowdown	0.00	0.00	0.00	0
5PB-18	2005	Development	3.13	0.00	1.39	1
5PB-18	2005	Fire	0.00	0.00	0.00	0
5PB-18	2005	Forest harvest	636.82	0.88	49.97	36
5PB-18	2005	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2005	Other	9.81	0.01	5.55	4
5PB-18	2006	Beaver	0.00	0.00	0.00	0
5PB-18	2006	Blowdown	0.00	0.00	0.00	0
5PB-18	2006	Development	0.50	0.00	2.78	2
5PB-18	2006	Fire	0.00	0.00	0.00	0
5PB-18	2006	Forest harvest	146.18	0.20	4.16	3
5PB-18	2006	Forest pathogen	39.58	0.05	18.05	13
5PB-18	2006	Other	0.00	0.00	0.00	0
5PB-18	2007	Beaver	0.00	0.00	0.00	0
5PB-18	2007	Blowdown	0.00	0.00	0.00	0
5PB-18	2007	Development	9.47	0.01	12.49	9
5PB-18	2007	Fire	0.00	0.00	0.00	0
5PB-18	2007	Forest harvest	402.93	0.56	66.63	48
5PB-18	2007	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2007	Other	0.00	0.00	0.00	0
5PB-18	2008	Beaver	3.42	0.00	1.39	1
5PB-18	2008	Blowdown	0.00	0.00	0.00	0
5PB-18	2008	Development	8.34	0.01	5.55	4
5PB-18	2008	Fire	0.00	0.00	0.00	0
5PB-18	2008	Forest harvest	707.97	0.98	51.36	37
5PB-18	2008	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2008	Other	0.00	0.00	0.00	0
5PB-18	2009	Beaver	15.93	0.02	4.16	3
5PB-18	2009	Blowdown	0.00	0.00	0.00	0
5PB-18	2009	Development	13.22	0.02	6.94	5
5PB-18	2009	Fire	0.00	0.00	0.00	0
5PB-18	2009	Forest harvest	404.42	0.56	52.75	38

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PB-18	2009	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2009	Other	0.00	0.00	0.00	0
5PB-18	2010	Beaver	10.58	0.01	6.94	5
5PB-18	2010	Blowdown	0.00	0.00	0.00	0
5PB-18	2010	Development	31.65	0.04	8.33	6
5PB-18	2010	Fire	0.00	0.00	0.00	0
5PB-18	2010	Forest harvest	400.59	0.56	27.76	20
5PB-18	2010	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2010	Other	4.14	0.01	1.39	1
5PB-18	2011	Beaver	9.09	0.01	1.39	1
5PB-18	2011	Blowdown	0.00	0.00	0.00	0
5PB-18	2011	Development	16.40	0.02	5.55	4
5PB-18	2011	Fire	0.00	0.00	0.00	0
5PB-18	2011	Forest harvest	1048.76	1.46	43.03	31
5PB-18	2011	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2011	Other	0.00	0.00	0.00	0
5PB-18	2012	Beaver	14.58	0.02	6.94	5
5PB-18	2012	Blowdown	0.00	0.00	0.00	0
5PB-18	2012	Development	2.59	0.00	2.78	2
5PB-18	2012	Fire	0.00	0.00	0.00	0
5PB-18	2012	Forest harvest	631.39	0.88	51.36	37
5PB-18	2012	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2012	Other	0.00	0.00	0.00	0
5PB-18	2013	Beaver	3.51	0.00	4.16	3
5PB-18	2013	Blowdown	0.00	0.00	0.00	0
5PB-18	2013	Development	0.00	0.00	0.00	0
5PB-18	2013	Fire	0.00	0.00	0.00	0
5PB-18	2013	Forest harvest	130.68	0.18	26.37	19
5PB-18	2013	Forest pathogen	0.00	0.00	0.00	0
5PB-18	2013	Other	0.00	0.00	0.00	0
5PB-20	1995	Beaver	1.53	0.02	10.56	1
5PB-20	1995	Blowdown	0.00	0.00	0.00	0
5PB-20	1995	Development	0.00	0.00	0.00	0
5PB-20	1995	Fire	0.00	0.00	0.00	0
5PB-20	1995	Forest harvest	30.82	0.33	21.12	2
5PB-20	1995	Forest pathogen	0.00	0.00	0.00	0
5PB-20	1995	Other	6.39	0.07	10.56	1
5PB-20	1996	Beaver	0.00	0.00	0.00	0
5PB-20	1996	Blowdown	0.00	0.00	0.00	0
5PB-20	1996	Development	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PB-20	1996	Fire	0.00	0.00	0.00	0
5PB-20	1996	Forest harvest	163.10	1.72	63.36	6
5PB-20	1996	Forest pathogen	0.00	0.00	0.00	0
5PB-20	1996	Other	0.00	0.00	0.00	0
5PB-20	1997	Beaver	2.70	0.03	10.56	1
5PB-20	1997	Blowdown	0.00	0.00	0.00	0
5PB-20	1997	Development	0.00	0.00	0.00	0
5PB-20	1997	Fire	0.00	0.00	0.00	0
5PB-20	1997	Forest harvest	161.83	1.71	105.60	10
5PB-20	1997	Forest pathogen	0.00	0.00	0.00	0
5PB-20	1997	Other	0.00	0.00	0.00	0
5PB-20	1998	Beaver	0.00	0.00	0.00	0
5PB-20	1998	Blowdown	0.00	0.00	0.00	0
5PB-20	1998	Development	0.00	0.00	0.00	0
5PB-20	1998	Fire	0.00	0.00	0.00	0
5PB-20	1998	Forest harvest	72.54	0.77	73.92	7
5PB-20	1998	Forest pathogen	0.00	0.00	0.00	0
5PB-20	1998	Other	0.00	0.00	0.00	0
5PB-20	1999	Beaver	0.00	0.00	0.00	0
5PB-20	1999	Blowdown	0.00	0.00	0.00	0
5PB-20	1999	Development	0.00	0.00	0.00	0
5PB-20	1999	Fire	0.00	0.00	0.00	0
5PB-20	1999	Forest harvest	0.00	0.00	0.00	0
5PB-20	1999	Forest pathogen	0.00	0.00	0.00	0
5PB-20	1999	Other	0.00	0.00	0.00	0
5PB-20	2000	Beaver	1.17	0.01	10.56	1
5PB-20	2000	Blowdown	0.00	0.00	0.00	0
5PB-20	2000	Development	0.00	0.00	0.00	0
5PB-20	2000	Fire	0.00	0.00	0.00	0
5PB-20	2000	Forest harvest	134.42	1.42	42.24	4
5PB-20	2000	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2000	Other	0.00	0.00	0.00	0
5PB-20	2001	Beaver	0.00	0.00	0.00	0
5PB-20	2001	Blowdown	0.00	0.00	0.00	0
5PB-20	2001	Development	0.00	0.00	0.00	0
5PB-20	2001	Fire	0.00	0.00	0.00	0
5PB-20	2001	Forest harvest	222.94	2.35	190.07	18
5PB-20	2001	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2001	Other	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PB-20	2002	Beaver	14.56	0.15	42.24	4
5PB-20	2002	Blowdown	0.00	0.00	0.00	0
5PB-20	2002	Development	0.00	0.00	0.00	0
5PB-20	2002	Fire	0.00	0.00	0.00	0
5PB-20	2002	Forest harvest	157.44	1.66	116.16	11
5PB-20	2002	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2002	Other	0.00	0.00	0.00	0
5PB-20	2003	Beaver	0.00	0.00	0.00	0
5PB-20	2003	Blowdown	0.00	0.00	0.00	0
5PB-20	2003	Development	0.00	0.00	0.00	0
5PB-20	2003	Fire	0.00	0.00	0.00	0
5PB-20	2003	Forest harvest	358.96	3.79	147.83	14
5PB-20	2003	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2003	Other	0.00	0.00	0.00	0
5PB-20	2004	Beaver	0.00	0.00	0.00	0
5PB-20	2004	Blowdown	0.00	0.00	0.00	0
5PB-20	2004	Development	0.00	0.00	0.00	0
5PB-20	2004	Fire	0.00	0.00	0.00	0
5PB-20	2004	Forest harvest	217.48	2.30	52.80	5
5PB-20	2004	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2004	Other	0.00	0.00	0.00	0
5PB-20	2005	Beaver	0.00	0.00	0.00	0
5PB-20	2005	Blowdown	0.00	0.00	0.00	0
5PB-20	2005	Development	0.00	0.00	0.00	0
5PB-20	2005	Fire	0.00	0.00	0.00	0
5PB-20	2005	Forest harvest	76.86	0.81	52.80	5
5PB-20	2005	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2005	Other	0.00	0.00	0.00	0
5PB-20	2006	Beaver	0.00	0.00	0.00	0
5PB-20	2006	Blowdown	0.00	0.00	0.00	0
5PB-20	2006	Development	0.00	0.00	0.00	0
5PB-20	2006	Fire	0.00	0.00	0.00	0
5PB-20	2006	Forest harvest	0.00	0.00	0.00	0
5PB-20	2006	Forest pathogen	4.50	0.05	21.12	2
5PB-20	2006	Other	0.00	0.00	0.00	0
5PB-20	2007	Beaver	0.00	0.00	0.00	0
5PB-20	2007	Blowdown	0.00	0.00	0.00	0
5PB-20	2007	Development	0.00	0.00	0.00	0
5PB-20	2007	Fire	0.00	0.00	0.00	0
5PB-20	2007	Forest harvest	15.11	0.16	10.56	1

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PB-20	2007	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2007	Other	0.00	0.00	0.00	0
5PB-20	2008	Beaver	1.53	0.02	10.56	1
5PB-20	2008	Blowdown	0.00	0.00	0.00	0
5PB-20	2008	Development	0.00	0.00	0.00	0
5PB-20	2008	Fire	0.00	0.00	0.00	0
5PB-20	2008	Forest harvest	54.14	0.57	31.68	3
5PB-20	2008	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2008	Other	0.00	0.00	0.00	0
5PB-20	2009	Beaver	2.52	0.03	10.56	1
5PB-20	2009	Blowdown	0.00	0.00	0.00	0
5PB-20	2009	Development	0.00	0.00	0.00	0
5PB-20	2009	Fire	0.00	0.00	0.00	0
5PB-20	2009	Forest harvest	184.93	1.95	63.36	6
5PB-20	2009	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2009	Other	0.00	0.00	0.00	0
5PB-20	2010	Beaver	0.00	0.00	0.00	0
5PB-20	2010	Blowdown	0.00	0.00	0.00	0
5PB-20	2010	Development	0.68	0.01	10.56	1
5PB-20	2010	Fire	0.00	0.00	0.00	0
5PB-20	2010	Forest harvest	142.85	1.51	84.48	8
5PB-20	2010	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2010	Other	0.00	0.00	0.00	0
5PB-20	2011	Beaver	0.00	0.00	0.00	0
5PB-20	2011	Blowdown	0.00	0.00	0.00	0
5PB-20	2011	Development	0.00	0.00	0.00	0
5PB-20	2011	Fire	0.00	0.00	0.00	0
5PB-20	2011	Forest harvest	0.00	0.00	0.00	0
5PB-20	2011	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2011	Other	0.00	0.00	0.00	0
5PB-20	2012	Beaver	0.00	0.00	0.00	0
5PB-20	2012	Blowdown	0.00	0.00	0.00	0
5PB-20	2012	Development	0.00	0.00	0.00	0
5PB-20	2012	Fire	0.00	0.00	0.00	0
5PB-20	2012	Forest harvest	0.00	0.00	0.00	0
5PB-20	2012	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2012	Other	0.00	0.00	0.00	0
5PB-20	2013	Beaver	0.00	0.00	0.00	0
5PB-20	2013	Blowdown	0.00	0.00	0.00	0
5PB-20	2013	Development	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
5PB-20	2013	Fire	0.00	0.00	0.00	0
5PB-20	2013	Forest harvest	0.00	0.00	0.00	0
5PB-20	2013	Forest pathogen	0.00	0.00	0.00	0
5PB-20	2013	Other	0.00	0.00	0.00	0
Ash River	1995	Beaver	3.47	0.01	7.57	3
Ash River	1995	Blowdown	0.00	0.00	0.00	0
Ash River	1995	Development	7.41	0.02	7.57	3
Ash River	1995	Fire	0.00	0.00	0.00	0
Ash River	1995	Forest harvest	268.24	0.68	93.40	37
Ash River	1995	Forest pathogen	0.00	0.00	0.00	0
Ash River	1995	Other	0.00	0.00	0.00	0
Ash River	1996	Beaver	9.79	0.02	17.67	7
Ash River	1996	Blowdown	0.00	0.00	0.00	0
Ash River	1996	Development	1.64	0.00	2.52	1
Ash River	1996	Fire	0.00	0.00	0.00	0
Ash River	1996	Forest harvest	267.64	0.68	90.88	36
Ash River	1996	Forest pathogen	0.00	0.00	0.00	0
Ash River	1996	Other	0.00	0.00	0.00	0
Ash River	1997	Beaver	17.09	0.04	27.77	11
Ash River	1997	Blowdown	0.00	0.00	0.00	0
Ash River	1997	Development	0.00	0.00	0.00	0
Ash River	1997	Fire	0.00	0.00	0.00	0
Ash River	1997	Forest harvest	717.29	1.81	212.05	84
Ash River	1997	Forest pathogen	0.00	0.00	0.00	0
Ash River	1997	Other	0.00	0.00	0.00	0
Ash River	1998	Beaver	17.35	0.04	12.62	5
Ash River	1998	Blowdown	0.00	0.00	0.00	0
Ash River	1998	Development	5.40	0.01	2.52	1
Ash River	1998	Fire	0.00	0.00	0.00	0
Ash River	1998	Forest harvest	595.55	1.50	209.53	83
Ash River	1998	Forest pathogen	0.00	0.00	0.00	0
Ash River	1998	Other	0.00	0.00	0.00	0
Ash River	1999	Beaver	1.13	0.00	2.52	1
Ash River	1999	Blowdown	0.00	0.00	0.00	0
Ash River	1999	Development	2.97	0.01	2.52	1
Ash River	1999	Fire	0.00	0.00	0.00	0
Ash River	1999	Forest harvest	302.82	0.76	80.78	32
Ash River	1999	Forest pathogen	37.62	0.09	35.34	14
Ash River	1999	Other	0.00	0.00	0.00	0
Ash River	2000	Beaver	21.78	0.05	20.20	8

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Ash River	2000	Blowdown	0.00	0.00	0.00	0
Ash River	2000	Development	0.97	0.00	2.52	1
Ash River	2000	Fire	0.00	0.00	0.00	0
Ash River	2000	Forest harvest	1081.16	2.73	161.56	64
Ash River	2000	Forest pathogen	819.72	2.07	345.85	137
Ash River	2000	Other	0.00	0.00	0.00	0
Ash River	2001	Beaver	26.64	0.07	20.20	8
Ash River	2001	Blowdown	0.00	0.00	0.00	0
Ash River	2001	Development	27.85	0.07	10.10	4
Ash River	2001	Fire	0.00	0.00	0.00	0
Ash River	2001	Forest harvest	468.78	1.18	133.79	53
Ash River	2001	Forest pathogen	156.33	0.39	113.60	45
Ash River	2001	Other	0.00	0.00	0.00	0
Ash River	2002	Beaver	2.32	0.01	5.05	2
Ash River	2002	Blowdown	0.00	0.00	0.00	0
Ash River	2002	Development	1.17	0.00	2.52	1
Ash River	2002	Fire	0.00	0.00	0.00	0
Ash River	2002	Forest harvest	491.76	1.24	148.94	59
Ash River	2002	Forest pathogen	0.00	0.00	0.00	0
Ash River	2002	Other	0.00	0.00	0.00	0
Ash River	2003	Beaver	0.94	0.00	2.52	1
Ash River	2003	Blowdown	0.00	0.00	0.00	0
Ash River	2003	Development	0.00	0.00	0.00	0
Ash River	2003	Fire	0.00	0.00	0.00	0
Ash River	2003	Forest harvest	685.19	1.73	164.09	65
Ash River	2003	Forest pathogen	0.00	0.00	0.00	0
Ash River	2003	Other	0.00	0.00	0.00	0
Ash River	2004	Beaver	2.35	0.01	2.52	1
Ash River	2004	Blowdown	0.00	0.00	0.00	0
Ash River	2004	Development	7.54	0.02	2.52	1
Ash River	2004	Fire	0.00	0.00	0.00	0
Ash River	2004	Forest harvest	547.35	1.38	131.27	52
Ash River	2004	Forest pathogen	0.00	0.00	0.00	0
Ash River	2004	Other	0.00	0.00	0.00	0
Ash River	2005	Beaver	1.03	0.00	2.52	1
Ash River	2005	Blowdown	0.00	0.00	0.00	0
Ash River	2005	Development	1.19	0.00	5.05	2
Ash River	2005	Fire	0.00	0.00	0.00	0
Ash River	2005	Forest harvest	677.36	1.71	169.14	67
Ash River	2005	Forest pathogen	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Ash River	2005	Other	0.00	0.00	0.00	0
Ash River	2006	Beaver	0.00	0.00	0.00	0
Ash River	2006	Blowdown	0.00	0.00	0.00	0
Ash River	2006	Development	0.00	0.00	0.00	0
Ash River	2006	Fire	0.00	0.00	0.00	0
Ash River	2006	Forest harvest	319.23	0.81	116.12	46
Ash River	2006	Forest pathogen	0.00	0.00	0.00	0
Ash River	2006	Other	0.00	0.00	0.00	0
Ash River	2007	Beaver	0.00	0.00	0.00	0
Ash River	2007	Blowdown	0.00	0.00	0.00	0
Ash River	2007	Development	0.00	0.00	0.00	0
Ash River	2007	Fire	0.00	0.00	0.00	0
Ash River	2007	Forest harvest	261.16	0.66	80.78	32
Ash River	2007	Forest pathogen	0.00	0.00	0.00	0
Ash River	2007	Other	0.00	0.00	0.00	0
Ash River	2008	Beaver	0.00	0.00	0.00	0
Ash River	2008	Blowdown	0.00	0.00	0.00	0
Ash River	2008	Development	2.00	0.01	2.52	1
Ash River	2008	Fire	0.00	0.00	0.00	0
Ash River	2008	Forest harvest	232.25	0.59	42.92	17
Ash River	2008	Forest pathogen	0.00	0.00	0.00	0
Ash River	2008	Other	0.00	0.00	0.00	0
Ash River	2009	Beaver	2.75	0.01	2.52	1
Ash River	2009	Blowdown	0.00	0.00	0.00	0
Ash River	2009	Development	19.96	0.05	10.10	4
Ash River	2009	Fire	0.00	0.00	0.00	0
Ash River	2009	Forest harvest	393.28	0.99	100.98	40
Ash River	2009	Forest pathogen	0.00	0.00	0.00	0
Ash River	2009	Other	0.00	0.00	0.00	0
Ash River	2010	Beaver	0.00	0.00	0.00	0
Ash River	2010	Blowdown	0.00	0.00	0.00	0
Ash River	2010	Development	0.00	0.00	0.00	0
Ash River	2010	Fire	0.00	0.00	0.00	0
Ash River	2010	Forest harvest	132.22	0.33	42.92	17
Ash River	2010	Forest pathogen	0.00	0.00	0.00	0
Ash River	2010	Other	0.00	0.00	0.00	0
Ash River	2011	Beaver	4.18	0.01	5.05	2
Ash River	2011	Blowdown	0.00	0.00	0.00	0
Ash River	2011	Development	0.00	0.00	0.00	0
Ash River	2011	Fire	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Ash River	2011	Forest harvest	225.77	0.57	63.11	25
Ash River	2011	Forest pathogen	0.00	0.00	0.00	0
Ash River	2011	Other	0.00	0.00	0.00	0
Ash River	2012	Beaver	0.00	0.00	0.00	0
Ash River	2012	Blowdown	0.00	0.00	0.00	0
Ash River	2012	Development	0.00	0.00	0.00	0
Ash River	2012	Fire	0.00	0.00	0.00	0
Ash River	2012	Forest harvest	208.35	0.53	80.78	32
Ash River	2012	Forest pathogen	0.00	0.00	0.00	0
Ash River	2012	Other	0.00	0.00	0.00	0
Ash River	2013	Beaver	0.00	0.00	0.00	0
Ash River	2013	Blowdown	0.00	0.00	0.00	0
Ash River	2013	Development	0.00	0.00	0.00	0
Ash River	2013	Fire	0.00	0.00	0.00	0
Ash River	2013	Forest harvest	47.03	0.12	22.72	9
Ash River	2013	Forest pathogen	0.00	0.00	0.00	0
Ash River	2013	Other	0.00	0.00	0.00	0
Echo River	1995	Beaver	5.11	0.03	25.73	5
Echo River	1995	Blowdown	0.00	0.00	0.00	0
Echo River	1995	Development	0.00	0.00	0.00	0
Echo River	1995	Fire	0.00	0.00	0.00	0
Echo River	1995	Forest harvest	339.70	1.75	185.27	36
Echo River	1995	Forest pathogen	0.00	0.00	0.00	0
Echo River	1995	Other	0.00	0.00	0.00	0
Echo River	1996	Beaver	0.00	0.00	0.00	0
Echo River	1996	Blowdown	0.00	0.00	0.00	0
Echo River	1996	Development	0.00	0.00	0.00	0
Echo River	1996	Fire	0.00	0.00	0.00	0
Echo River	1996	Forest harvest	283.01	1.46	159.54	31
Echo River	1996	Forest pathogen	0.00	0.00	0.00	0
Echo River	1996	Other	0.00	0.00	0.00	0
Echo River	1997	Beaver	0.00	0.00	0.00	0
Echo River	1997	Blowdown	0.00	0.00	0.00	0
Echo River	1997	Development	0.00	0.00	0.00	0
Echo River	1997	Fire	0.00	0.00	0.00	0
Echo River	1997	Forest harvest	181.14	0.93	102.93	20
Echo River	1997	Forest pathogen	0.00	0.00	0.00	0
Echo River	1997	Other	0.00	0.00	0.00	0
Echo River	1998	Beaver	0.00	0.00	0.00	0
Echo River	1998	Blowdown	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Echo River	1998	Development	0.00	0.00	0.00	0
Echo River	1998	Fire	0.00	0.00	0.00	0
Echo River	1998	Forest harvest	198.84	1.02	102.93	20
Echo River	1998	Forest pathogen	0.00	0.00	0.00	0
Echo River	1998	Other	0.00	0.00	0.00	0
Echo River	1999	Beaver	0.00	0.00	0.00	0
Echo River	1999	Blowdown	0.00	0.00	0.00	0
Echo River	1999	Development	0.00	0.00	0.00	0
Echo River	1999	Fire	0.00	0.00	0.00	0
Echo River	1999	Forest harvest	132.69	0.68	46.32	9
Echo River	1999	Forest pathogen	0.00	0.00	0.00	0
Echo River	1999	Other	0.00	0.00	0.00	0
Echo River	2000	Beaver	0.00	0.00	0.00	0
Echo River	2000	Blowdown	0.00	0.00	0.00	0
Echo River	2000	Development	0.00	0.00	0.00	0
Echo River	2000	Fire	0.00	0.00	0.00	0
Echo River	2000	Forest harvest	164.27	0.85	61.76	12
Echo River	2000	Forest pathogen	0.00	0.00	0.00	0
Echo River	2000	Other	0.00	0.00	0.00	0
Echo River	2001	Beaver	22.23	0.11	20.59	4
Echo River	2001	Blowdown	0.00	0.00	0.00	0
Echo River	2001	Development	0.00	0.00	0.00	0
Echo River	2001	Fire	0.00	0.00	0.00	0
Echo River	2001	Forest harvest	144.97	0.75	56.61	11
Echo River	2001	Forest pathogen	0.00	0.00	0.00	0
Echo River	2001	Other	0.00	0.00	0.00	0
Echo River	2002	Beaver	0.00	0.00	0.00	0
Echo River	2002	Blowdown	0.00	0.00	0.00	0
Echo River	2002	Development	0.00	0.00	0.00	0
Echo River	2002	Fire	0.00	0.00	0.00	0
Echo River	2002	Forest harvest	51.57	0.27	20.59	4
Echo River	2002	Forest pathogen	0.00	0.00	0.00	0
Echo River	2002	Other	0.00	0.00	0.00	0
Echo River	2003	Beaver	0.00	0.00	0.00	0
Echo River	2003	Blowdown	0.00	0.00	0.00	0
Echo River	2003	Development	0.00	0.00	0.00	0
Echo River	2003	Fire	0.00	0.00	0.00	0
Echo River	2003	Forest harvest	199.31	1.03	61.76	12
Echo River	2003	Forest pathogen	0.00	0.00	0.00	0
Echo River	2003	Other	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Echo River	2004	Beaver	0.00	0.00	0.00	0
Echo River	2004	Blowdown	0.00	0.00	0.00	0
Echo River	2004	Development	25.26	0.13	15.44	3
Echo River	2004	Fire	0.00	0.00	0.00	0
Echo River	2004	Forest harvest	158.07	0.81	92.64	18
Echo River	2004	Forest pathogen	0.00	0.00	0.00	0
Echo River	2004	Other	0.00	0.00	0.00	0
Echo River	2005	Beaver	7.34	0.04	15.44	3
Echo River	2005	Blowdown	0.00	0.00	0.00	0
Echo River	2005	Development	0.00	0.00	0.00	0
Echo River	2005	Fire	0.00	0.00	0.00	0
Echo River	2005	Forest harvest	136.44	0.70	138.95	27
Echo River	2005	Forest pathogen	0.00	0.00	0.00	0
Echo River	2005	Other	0.00	0.00	0.00	0
Echo River	2006	Beaver	0.00	0.00	0.00	0
Echo River	2006	Blowdown	0.00	0.00	0.00	0
Echo River	2006	Development	0.00	0.00	0.00	0
Echo River	2006	Fire	0.00	0.00	0.00	0
Echo River	2006	Forest harvest	6.03	0.03	5.15	1
Echo River	2006	Forest pathogen	0.00	0.00	0.00	0
Echo River	2006	Other	0.00	0.00	0.00	0
Echo River	2007	Beaver	1.35	0.01	5.15	1
Echo River	2007	Blowdown	0.00	0.00	0.00	0
Echo River	2007	Development	0.00	0.00	0.00	0
Echo River	2007	Fire	0.00	0.00	0.00	0
Echo River	2007	Forest harvest	19.34	0.10	41.17	8
Echo River	2007	Forest pathogen	0.00	0.00	0.00	0
Echo River	2007	Other	0.00	0.00	0.00	0
Echo River	2008	Beaver	0.00	0.00	0.00	0
Echo River	2008	Blowdown	0.00	0.00	0.00	0
Echo River	2008	Development	0.00	0.00	0.00	0
Echo River	2008	Fire	0.00	0.00	0.00	0
Echo River	2008	Forest harvest	52.03	0.27	56.61	11
Echo River	2008	Forest pathogen	0.00	0.00	0.00	0
Echo River	2008	Other	0.00	0.00	0.00	0
Echo River	2009	Beaver	0.00	0.00	0.00	0
Echo River	2009	Blowdown	0.00	0.00	0.00	0
Echo River	2009	Development	0.00	0.00	0.00	0
Echo River	2009	Fire	0.00	0.00	0.00	0
Echo River	2009	Forest harvest	153.47	0.79	66.90	13

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Echo River	2009	Forest pathogen	0.00	0.00	0.00	0
Echo River	2009	Other	0.00	0.00	0.00	0
Echo River	2010	Beaver	2.79	0.01	5.15	1
Echo River	2010	Blowdown	0.00	0.00	0.00	0
Echo River	2010	Development	0.00	0.00	0.00	0
Echo River	2010	Fire	0.00	0.00	0.00	0
Echo River	2010	Forest harvest	186.23	0.96	133.81	26
Echo River	2010	Forest pathogen	0.00	0.00	0.00	0
Echo River	2010	Other	0.00	0.00	0.00	0
Echo River	2011	Beaver	0.00	0.00	0.00	0
Echo River	2011	Blowdown	0.00	0.00	0.00	0
Echo River	2011	Development	0.00	0.00	0.00	0
Echo River	2011	Fire	0.00	0.00	0.00	0
Echo River	2011	Forest harvest	227.67	1.17	149.25	29
Echo River	2011	Forest pathogen	0.00	0.00	0.00	0
Echo River	2011	Other	0.00	0.00	0.00	0
Echo River	2012	Beaver	0.00	0.00	0.00	0
Echo River	2012	Blowdown	0.00	0.00	0.00	0
Echo River	2012	Development	0.00	0.00	0.00	0
Echo River	2012	Fire	0.00	0.00	0.00	0
Echo River	2012	Forest harvest	243.89	1.26	195.56	38
Echo River	2012	Forest pathogen	0.00	0.00	0.00	0
Echo River	2012	Other	0.00	0.00	0.00	0
Echo River	2013	Beaver	0.00	0.00	0.00	0
Echo River	2013	Blowdown	0.00	0.00	0.00	0
Echo River	2013	Development	0.00	0.00	0.00	0
Echo River	2013	Fire	0.00	0.00	0.00	0
Echo River	2013	Forest harvest	132.86	0.68	144.10	28
Echo River	2013	Forest pathogen	0.00	0.00	0.00	0
Echo River	2013	Other	0.00	0.00	0.00	0
Kabetogama Lake	1995	Beaver	0.65	0.00	4.54	1
Kabetogama Lake	1995	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	1995	Development	16.81	0.08	27.26	6
Kabetogama Lake	1995	Fire	0.00	0.00	0.00	0
Kabetogama Lake	1995	Forest harvest	15.75	0.07	22.72	5
Kabetogama Lake	1995	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	1995	Other	0.00	0.00	0.00	0
Kabetogama Lake	1996	Beaver	4.18	0.02	18.18	4
Kabetogama Lake	1996	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	1996	Development	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Kabetogama Lake	1996	Fire	0.00	0.00	0.00	0
Kabetogama Lake	1996	Forest harvest	125.68	0.57	81.79	18
Kabetogama Lake	1996	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	1996	Other	0.00	0.00	0.00	0
Kabetogama Lake	1997	Beaver	10.15	0.05	49.98	11
Kabetogama Lake	1997	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	1997	Development	2.26	0.01	9.09	2
Kabetogama Lake	1997	Fire	0.00	0.00	0.00	0
Kabetogama Lake	1997	Forest harvest	80.17	0.36	86.34	19
Kabetogama Lake	1997	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	1997	Other	0.00	0.00	0.00	0
Kabetogama Lake	1998	Beaver	1.35	0.01	4.54	1
Kabetogama Lake	1998	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	1998	Development	1.17	0.01	4.54	1
Kabetogama Lake	1998	Fire	0.00	0.00	0.00	0
Kabetogama Lake	1998	Forest harvest	84.92	0.39	90.88	20
Kabetogama Lake	1998	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	1998	Other	0.00	0.00	0.00	0
Kabetogama Lake	1999	Beaver	2.03	0.01	9.09	2
Kabetogama Lake	1999	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	1999	Development	0.00	0.00	0.00	0
Kabetogama Lake	1999	Fire	0.00	0.00	0.00	0
Kabetogama Lake	1999	Forest harvest	57.69	0.26	31.81	7
Kabetogama Lake	1999	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	1999	Other	0.00	0.00	0.00	0
Kabetogama Lake	2000	Beaver	5.76	0.03	13.63	3
Kabetogama Lake	2000	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2000	Development	0.00	0.00	0.00	0
Kabetogama Lake	2000	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2000	Forest harvest	136.15	0.62	77.25	17
Kabetogama Lake	2000	Forest pathogen	202.59	0.92	286.27	63
Kabetogama Lake	2000	Other	0.00	0.00	0.00	0
Kabetogama Lake	2001	Beaver	18.57	0.08	31.81	7
Kabetogama Lake	2001	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2001	Development	0.39	0.00	4.54	1
Kabetogama Lake	2001	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2001	Forest harvest	10.88	0.05	18.18	4
Kabetogama Lake	2001	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2001	Other	0.00	0.00	0.00	0
Kabetogama Lake	2002	Beaver	5.67	0.03	13.63	3

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Kabetogama Lake	2002	Blowdown	9.62	0.04	13.63	3
Kabetogama Lake	2002	Development	1.78	0.01	4.54	1
Kabetogama Lake	2002	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2002	Forest harvest	8.42	0.04	22.72	5
Kabetogama Lake	2002	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2002	Other	0.00	0.00	0.00	0
Kabetogama Lake	2003	Beaver	6.13	0.03	18.18	4
Kabetogama Lake	2003	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2003	Development	2.88	0.01	13.63	3
Kabetogama Lake	2003	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2003	Forest harvest	67.44	0.31	59.07	13
Kabetogama Lake	2003	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2003	Other	0.00	0.00	0.00	0
Kabetogama Lake	2004	Beaver	2.32	0.01	9.09	2
Kabetogama Lake	2004	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2004	Development	0.00	0.00	0.00	0
Kabetogama Lake	2004	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2004	Forest harvest	76.04	0.35	27.26	6
Kabetogama Lake	2004	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2004	Other	0.00	0.00	0.00	0
Kabetogama Lake	2005	Beaver	2.85	0.01	9.09	2
Kabetogama Lake	2005	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2005	Development	0.43	0.00	4.54	1
Kabetogama Lake	2005	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2005	Forest harvest	28.49	0.13	22.72	5
Kabetogama Lake	2005	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2005	Other	0.00	0.00	0.00	0
Kabetogama Lake	2006	Beaver	0.00	0.00	0.00	0
Kabetogama Lake	2006	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2006	Development	0.81	0.00	4.54	1
Kabetogama Lake	2006	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2006	Forest harvest	84.64	0.38	36.35	8
Kabetogama Lake	2006	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2006	Other	0.00	0.00	0.00	0
Kabetogama Lake	2007	Beaver	0.00	0.00	0.00	0
Kabetogama Lake	2007	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2007	Development	0.00	0.00	0.00	0
Kabetogama Lake	2007	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2007	Forest harvest	33.98	0.15	40.90	9
Kabetogama Lake	2007	Forest pathogen	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Kabetogama Lake	2007	Other	0.00	0.00	0.00	0
Kabetogama Lake	2008	Beaver	0.00	0.00	0.00	0
Kabetogama Lake	2008	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2008	Development	1.62	0.01	4.54	1
Kabetogama Lake	2008	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2008	Forest harvest	95.40	0.43	27.26	6
Kabetogama Lake	2008	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2008	Other	0.00	0.00	0.00	0
Kabetogama Lake	2009	Beaver	0.00	0.00	0.00	0
Kabetogama Lake	2009	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2009	Development	7.70	0.04	4.54	1
Kabetogama Lake	2009	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2009	Forest harvest	102.76	0.47	59.07	13
Kabetogama Lake	2009	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2009	Other	0.00	0.00	0.00	0
Kabetogama Lake	2010	Beaver	2.05	0.01	9.09	2
Kabetogama Lake	2010	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2010	Development	0.00	0.00	0.00	0
Kabetogama Lake	2010	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2010	Forest harvest	161.46	0.73	36.35	8
Kabetogama Lake	2010	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2010	Other	0.00	0.00	0.00	0
Kabetogama Lake	2011	Beaver	0.47	0.00	4.54	1
Kabetogama Lake	2011	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2011	Development	0.00	0.00	0.00	0
Kabetogama Lake	2011	Fire	3.78	0.02	4.54	1
Kabetogama Lake	2011	Forest harvest	117.00	0.53	40.90	9
Kabetogama Lake	2011	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2011	Other	0.00	0.00	0.00	0
Kabetogama Lake	2012	Beaver	0.00	0.00	0.00	0
Kabetogama Lake	2012	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2012	Development	4.14	0.02	4.54	1
Kabetogama Lake	2012	Fire	0.00	0.00	0.00	0
Kabetogama Lake	2012	Forest harvest	318.20	1.45	86.34	19
Kabetogama Lake	2012	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2012	Other	0.00	0.00	0.00	0
Kabetogama Lake	2013	Beaver	2.07	0.01	4.54	1
Kabetogama Lake	2013	Blowdown	0.00	0.00	0.00	0
Kabetogama Lake	2013	Development	0.00	0.00	0.00	0
Kabetogama Lake	2013	Fire	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Kabetogama Lake	2013	Forest harvest	58.41	0.27	45.44	10
Kabetogama Lake	2013	Forest pathogen	0.00	0.00	0.00	0
Kabetogama Lake	2013	Other	0.00	0.00	0.00	0
Loon River	1995	Beaver	10.70	0.03	15.17	6
Loon River	1995	Blowdown	0.00	0.00	0.00	0
Loon River	1995	Development	0.00	0.00	0.00	0
Loon River	1995	Fire	0.00	0.00	0.00	0
Loon River	1995	Forest harvest	6.39	0.02	2.53	1
Loon River	1995	Forest pathogen	0.00	0.00	0.00	0
Loon River	1995	Other	0.00	0.00	0.00	0
Loon River	1996	Beaver	0.94	0.00	2.53	1
Loon River	1996	Blowdown	0.00	0.00	0.00	0
Loon River	1996	Development	0.00	0.00	0.00	0
Loon River	1996	Fire	0.00	0.00	0.00	0
Loon River	1996	Forest harvest	136.92	0.35	15.17	6
Loon River	1996	Forest pathogen	0.00	0.00	0.00	0
Loon River	1996	Other	0.00	0.00	0.00	0
Loon River	1997	Beaver	6.57	0.02	10.12	4
Loon River	1997	Blowdown	0.00	0.00	0.00	0
Loon River	1997	Development	0.00	0.00	0.00	0
Loon River	1997	Fire	0.00	0.00	0.00	0
Loon River	1997	Forest harvest	14.04	0.04	2.53	1
Loon River	1997	Forest pathogen	0.00	0.00	0.00	0
Loon River	1997	Other	0.00	0.00	0.00	0
Loon River	1998	Beaver	0.00	0.00	0.00	0
Loon River	1998	Blowdown	0.00	0.00	0.00	0
Loon River	1998	Development	0.00	0.00	0.00	0
Loon River	1998	Fire	0.00	0.00	0.00	0
Loon River	1998	Forest harvest	14.09	0.04	7.59	3
Loon River	1998	Forest pathogen	0.00	0.00	0.00	0
Loon River	1998	Other	0.00	0.00	0.00	0
Loon River	1999	Beaver	0.00	0.00	0.00	0
Loon River	1999	Blowdown	1171.76	2.96	371.76	147
Loon River	1999	Development	0.00	0.00	0.00	0
Loon River	1999	Fire	0.00	0.00	0.00	0
Loon River	1999	Forest harvest	0.00	0.00	0.00	0
Loon River	1999	Forest pathogen	0.00	0.00	0.00	0
Loon River	1999	Other	0.00	0.00	0.00	0
Loon River	2000	Beaver	0.00	0.00	0.00	0
Loon River	2000	Blowdown	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Loon River	2000	Development	0.00	0.00	0.00	0
Loon River	2000	Fire	0.00	0.00	0.00	0
Loon River	2000	Forest harvest	25.11	0.06	7.59	3
Loon River	2000	Forest pathogen	0.00	0.00	0.00	0
Loon River	2000	Other	0.00	0.00	0.00	0
Loon River	2001	Beaver	13.29	0.03	10.12	4
Loon River	2001	Blowdown	0.00	0.00	0.00	0
Loon River	2001	Development	0.00	0.00	0.00	0
Loon River	2001	Fire	0.00	0.00	0.00	0
Loon River	2001	Forest harvest	120.11	0.30	22.76	9
Loon River	2001	Forest pathogen	51.66	0.13	15.17	6
Loon River	2001	Other	0.00	0.00	0.00	0
Loon River	2002	Beaver	8.37	0.02	7.59	3
Loon River	2002	Blowdown	0.00	0.00	0.00	0
Loon River	2002	Development	0.00	0.00	0.00	0
Loon River	2002	Fire	0.00	0.00	0.00	0
Loon River	2002	Forest harvest	0.00	0.00	0.00	0
Loon River	2002	Forest pathogen	0.00	0.00	0.00	0
Loon River	2002	Other	0.00	0.00	0.00	0
Loon River	2003	Beaver	1.53	0.00	2.53	1
Loon River	2003	Blowdown	0.00	0.00	0.00	0
Loon River	2003	Development	0.00	0.00	0.00	0
Loon River	2003	Fire	0.00	0.00	0.00	0
Loon River	2003	Forest harvest	0.00	0.00	0.00	0
Loon River	2003	Forest pathogen	0.00	0.00	0.00	0
Loon River	2003	Other	0.00	0.00	0.00	0
Loon River	2004	Beaver	0.00	0.00	0.00	0
Loon River	2004	Blowdown	0.00	0.00	0.00	0
Loon River	2004	Development	0.00	0.00	0.00	0
Loon River	2004	Fire	0.00	0.00	0.00	0
Loon River	2004	Forest harvest	33.50	0.08	2.53	1
Loon River	2004	Forest pathogen	0.00	0.00	0.00	0
Loon River	2004	Other	0.00	0.00	0.00	0
Loon River	2005	Beaver	8.64	0.02	2.53	1
Loon River	2005	Blowdown	0.00	0.00	0.00	0
Loon River	2005	Development	0.00	0.00	0.00	0
Loon River	2005	Fire	0.00	0.00	0.00	0
Loon River	2005	Forest harvest	0.00	0.00	0.00	0
Loon River	2005	Forest pathogen	0.00	0.00	0.00	0
Loon River	2005	Other	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Loon River	2006	Beaver	0.00	0.00	0.00	0
Loon River	2006	Blowdown	0.00	0.00	0.00	0
Loon River	2006	Development	0.00	0.00	0.00	0
Loon River	2006	Fire	280.94	0.71	174.50	69
Loon River	2006	Forest harvest	0.00	0.00	0.00	0
Loon River	2006	Forest pathogen	0.00	0.00	0.00	0
Loon River	2006	Other	0.00	0.00	0.00	0
Loon River	2007	Beaver	0.00	0.00	0.00	0
Loon River	2007	Blowdown	0.00	0.00	0.00	0
Loon River	2007	Development	0.00	0.00	0.00	0
Loon River	2007	Fire	0.00	0.00	0.00	0
Loon River	2007	Forest harvest	0.00	0.00	0.00	0
Loon River	2007	Forest pathogen	0.00	0.00	0.00	0
Loon River	2007	Other	0.00	0.00	0.00	0
Loon River	2008	Beaver	0.00	0.00	0.00	0
Loon River	2008	Blowdown	0.00	0.00	0.00	0
Loon River	2008	Development	0.00	0.00	0.00	0
Loon River	2008	Fire	0.00	0.00	0.00	0
Loon River	2008	Forest harvest	12.69	0.03	2.53	1
Loon River	2008	Forest pathogen	0.00	0.00	0.00	0
Loon River	2008	Other	0.00	0.00	0.00	0
Loon River	2009	Beaver	7.11	0.02	7.59	3
Loon River	2009	Blowdown	0.00	0.00	0.00	0
Loon River	2009	Development	0.00	0.00	0.00	0
Loon River	2009	Fire	0.00	0.00	0.00	0
Loon River	2009	Forest harvest	0.00	0.00	0.00	0
Loon River	2009	Forest pathogen	0.00	0.00	0.00	0
Loon River	2009	Other	0.00	0.00	0.00	0
Loon River	2010	Beaver	19.97	0.05	2.53	1
Loon River	2010	Blowdown	0.00	0.00	0.00	0
Loon River	2010	Development	0.00	0.00	0.00	0
Loon River	2010	Fire	0.00	0.00	0.00	0
Loon River	2010	Forest harvest	13.32	0.03	5.06	2
Loon River	2010	Forest pathogen	0.00	0.00	0.00	0
Loon River	2010	Other	0.00	0.00	0.00	0
Loon River	2011	Beaver	0.00	0.00	0.00	0
Loon River	2011	Blowdown	0.00	0.00	0.00	0
Loon River	2011	Development	0.00	0.00	0.00	0
Loon River	2011	Fire	0.00	0.00	0.00	0
Loon River	2011	Forest harvest	13.41	0.03	5.06	2

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Loon River	2011	Forest pathogen	0.00	0.00	0.00	0
Loon River	2011	Other	0.00	0.00	0.00	0
Loon River	2012	Beaver	7.47	0.02	2.53	1
Loon River	2012	Blowdown	0.00	0.00	0.00	0
Loon River	2012	Development	0.00	0.00	0.00	0
Loon River	2012	Fire	0.00	0.00	0.00	0
Loon River	2012	Forest harvest	8.28	0.02	7.59	3
Loon River	2012	Forest pathogen	0.00	0.00	0.00	0
Loon River	2012	Other	0.00	0.00	0.00	0
Loon River	2013	Beaver	0.00	0.00	0.00	0
Loon River	2013	Blowdown	0.00	0.00	0.00	0
Loon River	2013	Development	0.00	0.00	0.00	0
Loon River	2013	Fire	20.39	0.05	2.53	1
Loon River	2013	Forest harvest	34.71	0.09	20.23	8
Loon River	2013	Forest pathogen	0.00	0.00	0.00	0
Loon River	2013	Other	0.00	0.00	0.00	0
Namakan Lake	1995	Beaver	0.00	0.00	0.00	0
Namakan Lake	1995	Blowdown	0.00	0.00	0.00	0
Namakan Lake	1995	Development	0.00	0.00	0.00	0
Namakan Lake	1995	Fire	0.00	0.00	0.00	0
Namakan Lake	1995	Forest harvest	303.93	0.92	51.35	17
Namakan Lake	1995	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	1995	Other	0.00	0.00	0.00	0
Namakan Lake	1996	Beaver	0.00	0.00	0.00	0
Namakan Lake	1996	Blowdown	0.00	0.00	0.00	0
Namakan Lake	1996	Development	0.00	0.00	0.00	0
Namakan Lake	1996	Fire	0.00	0.00	0.00	0
Namakan Lake	1996	Forest harvest	150.96	0.46	39.27	13
Namakan Lake	1996	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	1996	Other	0.00	0.00	0.00	0
Namakan Lake	1997	Beaver	0.54	0.00	3.02	1
Namakan Lake	1997	Blowdown	22.45	0.07	9.06	3
Namakan Lake	1997	Development	0.00	0.00	0.00	0
Namakan Lake	1997	Fire	0.00	0.00	0.00	0
Namakan Lake	1997	Forest harvest	147.15	0.44	36.25	12
Namakan Lake	1997	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	1997	Other	0.00	0.00	0.00	0
Namakan Lake	1998	Beaver	9.43	0.03	6.04	2
Namakan Lake	1998	Blowdown	0.00	0.00	0.00	0
Namakan Lake	1998	Development	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Namakan Lake	1998	Fire	0.00	0.00	0.00	0
Namakan Lake	1998	Forest harvest	186.53	0.56	72.50	24
Namakan Lake	1998	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	1998	Other	0.00	0.00	0.00	0
Namakan Lake	1999	Beaver	0.00	0.00	0.00	0
Namakan Lake	1999	Blowdown	0.00	0.00	0.00	0
Namakan Lake	1999	Development	0.00	0.00	0.00	0
Namakan Lake	1999	Fire	0.00	0.00	0.00	0
Namakan Lake	1999	Forest harvest	142.08	0.43	18.12	6
Namakan Lake	1999	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	1999	Other	0.00	0.00	0.00	0
Namakan Lake	2000	Beaver	4.82	0.01	9.06	3
Namakan Lake	2000	Blowdown	3.87	0.01	3.02	1
Namakan Lake	2000	Development	0.00	0.00	0.00	0
Namakan Lake	2000	Fire	0.00	0.00	0.00	0
Namakan Lake	2000	Forest harvest	121.53	0.37	45.31	15
Namakan Lake	2000	Forest pathogen	23.63	0.07	18.12	6
Namakan Lake	2000	Other	0.00	0.00	0.00	0
Namakan Lake	2001	Beaver	29.07	0.09	15.10	5
Namakan Lake	2001	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2001	Development	0.00	0.00	0.00	0
Namakan Lake	2001	Fire	0.00	0.00	0.00	0
Namakan Lake	2001	Forest harvest	101.59	0.31	36.25	12
Namakan Lake	2001	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2001	Other	0.00	0.00	0.00	0
Namakan Lake	2002	Beaver	5.35	0.02	12.08	4
Namakan Lake	2002	Blowdown	21.73	0.07	9.06	3
Namakan Lake	2002	Development	0.00	0.00	0.00	0
Namakan Lake	2002	Fire	0.00	0.00	0.00	0
Namakan Lake	2002	Forest harvest	172.75	0.52	69.48	23
Namakan Lake	2002	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2002	Other	0.00	0.00	0.00	0
Namakan Lake	2003	Beaver	11.40	0.03	12.08	4
Namakan Lake	2003	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2003	Development	0.00	0.00	0.00	0
Namakan Lake	2003	Fire	0.00	0.00	0.00	0
Namakan Lake	2003	Forest harvest	133.56	0.40	12.08	4
Namakan Lake	2003	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2003	Other	0.00	0.00	0.00	0
Namakan Lake	2004	Beaver	10.02	0.03	12.08	4

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Namakan Lake	2004	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2004	Development	0.00	0.00	0.00	0
Namakan Lake	2004	Fire	0.00	0.00	0.00	0
Namakan Lake	2004	Forest harvest	28.89	0.09	9.06	3
Namakan Lake	2004	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2004	Other	0.00	0.00	0.00	0
Namakan Lake	2005	Beaver	17.20	0.05	24.17	8
Namakan Lake	2005	Blowdown	7.84	0.02	6.04	2
Namakan Lake	2005	Development	0.00	0.00	0.00	0
Namakan Lake	2005	Fire	0.00	0.00	0.00	0
Namakan Lake	2005	Forest harvest	85.35	0.26	9.06	3
Namakan Lake	2005	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2005	Other	0.00	0.00	0.00	0
Namakan Lake	2006	Beaver	6.67	0.02	6.04	2
Namakan Lake	2006	Blowdown	8.03	0.02	15.10	5
Namakan Lake	2006	Development	0.00	0.00	0.00	0
Namakan Lake	2006	Fire	0.00	0.00	0.00	0
Namakan Lake	2006	Forest harvest	114.10	0.34	42.29	14
Namakan Lake	2006	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2006	Other	0.00	0.00	0.00	0
Namakan Lake	2007	Beaver	14.57	0.04	15.10	5
Namakan Lake	2007	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2007	Development	0.00	0.00	0.00	0
Namakan Lake	2007	Fire	0.27	0.00	3.02	1
Namakan Lake	2007	Forest harvest	144.44	0.44	24.17	8
Namakan Lake	2007	Forest pathogen	4.74	0.01	6.04	2
Namakan Lake	2007	Other	0.00	0.00	0.00	0
Namakan Lake	2008	Beaver	16.56	0.05	6.04	2
Namakan Lake	2008	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2008	Development	0.00	0.00	0.00	0
Namakan Lake	2008	Fire	0.00	0.00	0.00	0
Namakan Lake	2008	Forest harvest	2.70	0.01	3.02	1
Namakan Lake	2008	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2008	Other	0.00	0.00	0.00	0
Namakan Lake	2009	Beaver	15.59	0.05	12.08	4
Namakan Lake	2009	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2009	Development	0.00	0.00	0.00	0
Namakan Lake	2009	Fire	0.00	0.00	0.00	0
Namakan Lake	2009	Forest harvest	71.12	0.21	18.12	6
Namakan Lake	2009	Forest pathogen	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Namakan Lake	2009	Other	0.00	0.00	0.00	0
Namakan Lake	2010	Beaver	13.41	0.04	6.04	2
Namakan Lake	2010	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2010	Development	0.00	0.00	0.00	0
Namakan Lake	2010	Fire	0.00	0.00	0.00	0
Namakan Lake	2010	Forest harvest	50.69	0.15	18.12	6
Namakan Lake	2010	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2010	Other	0.00	0.00	0.00	0
Namakan Lake	2011	Beaver	0.00	0.00	0.00	0
Namakan Lake	2011	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2011	Development	0.00	0.00	0.00	0
Namakan Lake	2011	Fire	0.00	0.00	0.00	0
Namakan Lake	2011	Forest harvest	0.00	0.00	0.00	0
Namakan Lake	2011	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2011	Other	0.00	0.00	0.00	0
Namakan Lake	2012	Beaver	1.53	0.00	3.02	1
Namakan Lake	2012	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2012	Development	0.00	0.00	0.00	0
Namakan Lake	2012	Fire	0.00	0.00	0.00	0
Namakan Lake	2012	Forest harvest	54.63	0.17	15.10	5
Namakan Lake	2012	Forest pathogen	62.28	0.19	3.02	1
Namakan Lake	2012	Other	0.00	0.00	0.00	0
Namakan Lake	2013	Beaver	3.42	0.01	3.02	1
Namakan Lake	2013	Blowdown	0.00	0.00	0.00	0
Namakan Lake	2013	Development	0.00	0.00	0.00	0
Namakan Lake	2013	Fire	0.00	0.00	0.00	0
Namakan Lake	2013	Forest harvest	28.26	0.09	21.14	7
Namakan Lake	2013	Forest pathogen	0.00	0.00	0.00	0
Namakan Lake	2013	Other	0.00	0.00	0.00	0
Rainy Lake	1995	Beaver	4.21	0.02	3.61	1
Rainy Lake	1995	Blowdown	0.00	0.00	0.00	0
Rainy Lake	1995	Development	0.00	0.00	0.00	0
Rainy Lake	1995	Fire	0.00	0.00	0.00	0
Rainy Lake	1995	Forest harvest	23.74	0.09	14.46	4
Rainy Lake	1995	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	1995	Other	0.00	0.00	0.00	0
Rainy Lake	1996	Beaver	2.43	0.01	7.23	2
Rainy Lake	1996	Blowdown	0.00	0.00	0.00	0
Rainy Lake	1996	Development	0.50	0.00	3.61	1
Rainy Lake	1996	Fire	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Rainy Lake	1996	Forest harvest	28.62	0.10	21.68	6
Rainy Lake	1996	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	1996	Other	0.00	0.00	0.00	0
Rainy Lake	1997	Beaver	22.09	0.08	21.68	6
Rainy Lake	1997	Blowdown	0.00	0.00	0.00	0
Rainy Lake	1997	Development	13.49	0.05	10.84	3
Rainy Lake	1997	Fire	10.17	0.04	7.23	2
Rainy Lake	1997	Forest harvest	141.06	0.51	57.82	16
Rainy Lake	1997	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	1997	Other	0.00	0.00	0.00	0
Rainy Lake	1998	Beaver	0.00	0.00	0.00	0
Rainy Lake	1998	Blowdown	0.00	0.00	0.00	0
Rainy Lake	1998	Development	1.08	0.00	3.61	1
Rainy Lake	1998	Fire	0.00	0.00	0.00	0
Rainy Lake	1998	Forest harvest	89.99	0.33	43.37	12
Rainy Lake	1998	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	1998	Other	0.00	0.00	0.00	0
Rainy Lake	1999	Beaver	0.00	0.00	0.00	0
Rainy Lake	1999	Blowdown	0.00	0.00	0.00	0
Rainy Lake	1999	Development	0.00	0.00	0.00	0
Rainy Lake	1999	Fire	0.00	0.00	0.00	0
Rainy Lake	1999	Forest harvest	65.66	0.24	32.53	9
Rainy Lake	1999	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	1999	Other	0.00	0.00	0.00	0
Rainy Lake	2000	Beaver	4.40	0.02	14.46	4
Rainy Lake	2000	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2000	Development	2.70	0.01	10.84	3
Rainy Lake	2000	Fire	0.00	0.00	0.00	0
Rainy Lake	2000	Forest harvest	155.89	0.56	61.44	17
Rainy Lake	2000	Forest pathogen	75.96	0.27	75.89	21
Rainy Lake	2000	Other	0.00	0.00	0.00	0
Rainy Lake	2001	Beaver	10.08	0.04	14.46	4
Rainy Lake	2001	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2001	Development	3.73	0.01	3.61	1
Rainy Lake	2001	Fire	0.00	0.00	0.00	0
Rainy Lake	2001	Forest harvest	44.33	0.16	18.07	5
Rainy Lake	2001	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2001	Other	3.69	0.01	3.61	1
Rainy Lake	2002	Beaver	37.66	0.14	46.98	13
Rainy Lake	2002	Blowdown	38.17	0.14	25.30	7

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Rainy Lake	2002	Development	0.00	0.00	0.00	0
Rainy Lake	2002	Fire	0.00	0.00	0.00	0
Rainy Lake	2002	Forest harvest	141.37	0.51	43.37	12
Rainy Lake	2002	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2002	Other	1.26	0.00	3.61	1
Rainy Lake	2003	Beaver	0.81	0.00	7.23	2
Rainy Lake	2003	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2003	Development	0.97	0.00	3.61	1
Rainy Lake	2003	Fire	0.00	0.00	0.00	0
Rainy Lake	2003	Forest harvest	55.56	0.20	28.91	8
Rainy Lake	2003	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2003	Other	0.00	0.00	0.00	0
Rainy Lake	2004	Beaver	2.68	0.01	14.46	4
Rainy Lake	2004	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2004	Development	0.79	0.00	3.61	1
Rainy Lake	2004	Fire	123.04	0.44	46.98	13
Rainy Lake	2004	Forest harvest	28.18	0.10	18.07	5
Rainy Lake	2004	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2004	Other	0.00	0.00	0.00	0
Rainy Lake	2005	Beaver	0.00	0.00	0.00	0
Rainy Lake	2005	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2005	Development	2.52	0.01	3.61	1
Rainy Lake	2005	Fire	57.49	0.21	57.82	16
Rainy Lake	2005	Forest harvest	47.19	0.17	32.53	9
Rainy Lake	2005	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2005	Other	0.00	0.00	0.00	0
Rainy Lake	2006	Beaver	0.00	0.00	0.00	0
Rainy Lake	2006	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2006	Development	2.30	0.01	7.23	2
Rainy Lake	2006	Fire	0.00	0.00	0.00	0
Rainy Lake	2006	Forest harvest	19.84	0.07	7.23	2
Rainy Lake	2006	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2006	Other	0.00	0.00	0.00	0
Rainy Lake	2007	Beaver	4.61	0.02	3.61	1
Rainy Lake	2007	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2007	Development	1.12	0.00	3.61	1
Rainy Lake	2007	Fire	0.00	0.00	0.00	0
Rainy Lake	2007	Forest harvest	18.35	0.07	14.46	4
Rainy Lake	2007	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2007	Other	1.67	0.01	3.61	1

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Rainy Lake	2008	Beaver	0.00	0.00	0.00	0
Rainy Lake	2008	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2008	Development	0.00	0.00	0.00	0
Rainy Lake	2008	Fire	0.00	0.00	0.00	0
Rainy Lake	2008	Forest harvest	58.86	0.21	18.07	5
Rainy Lake	2008	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2008	Other	0.00	0.00	0.00	0
Rainy Lake	2009	Beaver	0.00	0.00	0.00	0
Rainy Lake	2009	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2009	Development	1.52	0.01	3.61	1
Rainy Lake	2009	Fire	0.00	0.00	0.00	0
Rainy Lake	2009	Forest harvest	12.59	0.05	18.07	5
Rainy Lake	2009	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2009	Other	0.00	0.00	0.00	0
Rainy Lake	2010	Beaver	1.08	0.00	3.61	1
Rainy Lake	2010	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2010	Development	0.00	0.00	0.00	0
Rainy Lake	2010	Fire	0.00	0.00	0.00	0
Rainy Lake	2010	Forest harvest	6.82	0.02	3.61	1
Rainy Lake	2010	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2010	Other	0.00	0.00	0.00	0
Rainy Lake	2011	Beaver	3.94	0.01	7.23	2
Rainy Lake	2011	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2011	Development	1.26	0.00	7.23	2
Rainy Lake	2011	Fire	0.00	0.00	0.00	0
Rainy Lake	2011	Forest harvest	24.84	0.09	25.30	7
Rainy Lake	2011	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2011	Other	0.00	0.00	0.00	0
Rainy Lake	2012	Beaver	0.00	0.00	0.00	0
Rainy Lake	2012	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2012	Development	6.66	0.02	10.84	3
Rainy Lake	2012	Fire	0.00	0.00	0.00	0
Rainy Lake	2012	Forest harvest	88.56	0.32	7.23	2
Rainy Lake	2012	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2012	Other	0.00	0.00	0.00	0
Rainy Lake	2013	Beaver	1.89	0.01	3.61	1
Rainy Lake	2013	Blowdown	0.00	0.00	0.00	0
Rainy Lake	2013	Development	0.00	0.00	0.00	0
Rainy Lake	2013	Fire	0.00	0.00	0.00	0
Rainy Lake	2013	Forest harvest	35.01	0.13	10.84	3

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Rainy Lake	2013	Forest pathogen	0.00	0.00	0.00	0
Rainy Lake	2013	Other	0.00	0.00	0.00	0
Rat Root River	1995	Beaver	2.54	0.00	2.74	2
Rat Root River	1995	Blowdown	0.00	0.00	0.00	0
Rat Root River	1995	Development	1.12	0.00	2.74	2
Rat Root River	1995	Fire	0.00	0.00	0.00	0
Rat Root River	1995	Forest harvest	483.99	0.66	97.22	71
Rat Root River	1995	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	1995	Other	0.00	0.00	0.00	0
Rat Root River	1996	Beaver	8.70	0.01	4.11	3
Rat Root River	1996	Blowdown	0.00	0.00	0.00	0
Rat Root River	1996	Development	2.16	0.00	1.37	1
Rat Root River	1996	Fire	0.00	0.00	0.00	0
Rat Root River	1996	Forest harvest	424.41	0.58	108.18	79
Rat Root River	1996	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	1996	Other	0.00	0.00	0.00	0
Rat Root River	1997	Beaver	21.99	0.03	26.02	19
Rat Root River	1997	Blowdown	0.00	0.00	0.00	0
Rat Root River	1997	Development	6.96	0.01	9.59	7
Rat Root River	1997	Fire	0.00	0.00	0.00	0
Rat Root River	1997	Forest harvest	784.95	1.07	139.67	102
Rat Root River	1997	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	1997	Other	0.00	0.00	0.00	0
Rat Root River	1998	Beaver	11.64	0.02	6.85	5
Rat Root River	1998	Blowdown	0.00	0.00	0.00	0
Rat Root River	1998	Development	8.99	0.01	5.48	4
Rat Root River	1998	Fire	0.00	0.00	0.00	0
Rat Root River	1998	Forest harvest	456.58	0.63	105.44	77
Rat Root River	1998	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	1998	Other	3.06	0.00	1.37	1
Rat Root River	1999	Beaver	0.00	0.00	0.00	0
Rat Root River	1999	Blowdown	0.00	0.00	0.00	0
Rat Root River	1999	Development	1.94	0.00	1.37	1
Rat Root River	1999	Fire	0.00	0.00	0.00	0
Rat Root River	1999	Forest harvest	402.57	0.55	84.90	62
Rat Root River	1999	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	1999	Other	0.00	0.00	0.00	0
Rat Root River	2000	Beaver	11.57	0.02	8.22	6
Rat Root River	2000	Blowdown	0.00	0.00	0.00	0
Rat Root River	2000	Development	9.92	0.01	2.74	2

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Rat Root River	2000	Fire	0.00	0.00	0.00	0
Rat Root River	2000	Forest harvest	971.66	1.33	175.28	128
Rat Root River	2000	Forest pathogen	790.70	1.08	299.89	219
Rat Root River	2000	Other	3.46	0.00	1.37	1
Rat Root River	2001	Beaver	41.78	0.06	15.06	11
Rat Root River	2001	Blowdown	0.00	0.00	0.00	0
Rat Root River	2001	Development	5.34	0.01	5.48	4
Rat Root River	2001	Fire	0.00	0.00	0.00	0
Rat Root River	2001	Forest harvest	524.84	0.72	98.59	72
Rat Root River	2001	Forest pathogen	67.80	0.09	30.13	22
Rat Root River	2001	Other	0.00	0.00	0.00	0
Rat Root River	2002	Beaver	2.64	0.00	4.11	3
Rat Root River	2002	Blowdown	0.00	0.00	0.00	0
Rat Root River	2002	Development	1.85	0.00	2.74	2
Rat Root River	2002	Fire	0.00	0.00	0.00	0
Rat Root River	2002	Forest harvest	421.68	0.58	72.58	53
Rat Root River	2002	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2002	Other	0.00	0.00	0.00	0
Rat Root River	2003	Beaver	1.22	0.00	1.37	1
Rat Root River	2003	Blowdown	0.00	0.00	0.00	0
Rat Root River	2003	Development	10.06	0.01	8.22	6
Rat Root River	2003	Fire	0.00	0.00	0.00	0
Rat Root River	2003	Forest harvest	835.22	1.14	130.09	95
Rat Root River	2003	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2003	Other	0.00	0.00	0.00	0
Rat Root River	2004	Beaver	1.71	0.00	1.37	1
Rat Root River	2004	Blowdown	0.00	0.00	0.00	0
Rat Root River	2004	Development	0.00	0.00	0.00	0
Rat Root River	2004	Fire	0.00	0.00	0.00	0
Rat Root River	2004	Forest harvest	662.42	0.91	128.72	94
Rat Root River	2004	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2004	Other	0.00	0.00	0.00	0
Rat Root River	2005	Beaver	12.47	0.02	6.85	5
Rat Root River	2005	Blowdown	0.00	0.00	0.00	0
Rat Root River	2005	Development	0.84	0.00	1.37	1
Rat Root River	2005	Fire	0.00	0.00	0.00	0
Rat Root River	2005	Forest harvest	649.68	0.89	105.44	77
Rat Root River	2005	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2005	Other	0.00	0.00	0.00	0
Rat Root River	2006	Beaver	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Rat Root River	2006	Blowdown	0.00	0.00	0.00	0
Rat Root River	2006	Development	15.67	0.02	2.74	2
Rat Root River	2006	Fire	0.00	0.00	0.00	0
Rat Root River	2006	Forest harvest	461.14	0.63	75.31	55
Rat Root River	2006	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2006	Other	0.00	0.00	0.00	0
Rat Root River	2007	Beaver	0.00	0.00	0.00	0
Rat Root River	2007	Blowdown	0.00	0.00	0.00	0
Rat Root River	2007	Development	0.00	0.00	0.00	0
Rat Root River	2007	Fire	0.00	0.00	0.00	0
Rat Root River	2007	Forest harvest	706.39	0.97	108.18	79
Rat Root River	2007	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2007	Other	0.00	0.00	0.00	0
Rat Root River	2008	Beaver	0.00	0.00	0.00	0
Rat Root River	2008	Blowdown	0.00	0.00	0.00	0
Rat Root River	2008	Development	0.00	0.00	0.00	0
Rat Root River	2008	Fire	0.00	0.00	0.00	0
Rat Root River	2008	Forest harvest	270.70	0.37	36.97	27
Rat Root River	2008	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2008	Other	0.00	0.00	0.00	0
Rat Root River	2009	Beaver	0.00	0.00	0.00	0
Rat Root River	2009	Blowdown	0.00	0.00	0.00	0
Rat Root River	2009	Development	0.00	0.00	0.00	0
Rat Root River	2009	Fire	0.00	0.00	0.00	0
Rat Root River	2009	Forest harvest	615.95	0.84	94.49	69
Rat Root River	2009	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2009	Other	0.00	0.00	0.00	0
Rat Root River	2010	Beaver	4.29	0.01	2.74	2
Rat Root River	2010	Blowdown	0.00	0.00	0.00	0
Rat Root River	2010	Development	1.13	0.00	1.37	1
Rat Root River	2010	Fire	0.00	0.00	0.00	0
Rat Root River	2010	Forest harvest	393.80	0.54	80.79	59
Rat Root River	2010	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2010	Other	0.00	0.00	0.00	0
Rat Root River	2011	Beaver	9.15	0.01	6.85	5
Rat Root River	2011	Blowdown	0.00	0.00	0.00	0
Rat Root River	2011	Development	0.00	0.00	0.00	0
Rat Root River	2011	Fire	0.00	0.00	0.00	0
Rat Root River	2011	Forest harvest	426.29	0.58	57.51	42
Rat Root River	2011	Forest pathogen	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Rat Root River	2011	Other	0.00	0.00	0.00	0
Rat Root River	2012	Beaver	1.83	0.00	1.37	1
Rat Root River	2012	Blowdown	0.00	0.00	0.00	0
Rat Root River	2012	Development	0.86	0.00	1.37	1
Rat Root River	2012	Fire	0.00	0.00	0.00	0
Rat Root River	2012	Forest harvest	666.30	0.91	86.27	63
Rat Root River	2012	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2012	Other	0.00	0.00	0.00	0
Rat Root River	2013	Beaver	1.05	0.00	1.37	1
Rat Root River	2013	Blowdown	0.00	0.00	0.00	0
Rat Root River	2013	Development	0.00	0.00	0.00	0
Rat Root River	2013	Fire	0.00	0.00	0.00	0
Rat Root River	2013	Forest harvest	226.04	0.31	53.41	39
Rat Root River	2013	Forest pathogen	0.00	0.00	0.00	0
Rat Root River	2013	Other	0.00	0.00	0.00	0
Vermilion River	1995	Beaver	11.67	0.02	19.22	12
Vermilion River	1995	Blowdown	0.00	0.00	0.00	0
Vermilion River	1995	Development	0.00	0.00	0.00	0
Vermilion River	1995	Fire	0.00	0.00	0.00	0
Vermilion River	1995	Forest harvest	786.17	1.26	110.53	69
Vermilion River	1995	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	1995	Other	0.00	0.00	0.00	0
Vermilion River	1996	Beaver	7.58	0.01	12.81	8
Vermilion River	1996	Blowdown	0.00	0.00	0.00	0
Vermilion River	1996	Development	1.00	0.00	3.20	2
Vermilion River	1996	Fire	0.00	0.00	0.00	0
Vermilion River	1996	Forest harvest	817.51	1.31	142.56	89
Vermilion River	1996	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	1996	Other	0.00	0.00	0.00	0
Vermilion River	1997	Beaver	13.33	0.02	8.01	5
Vermilion River	1997	Blowdown	0.00	0.00	0.00	0
Vermilion River	1997	Development	0.00	0.00	0.00	0
Vermilion River	1997	Fire	0.00	0.00	0.00	0
Vermilion River	1997	Forest harvest	934.99	1.50	136.16	85
Vermilion River	1997	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	1997	Other	0.00	0.00	0.00	0
Vermilion River	1998	Beaver	0.46	0.00	1.60	1
Vermilion River	1998	Blowdown	0.00	0.00	0.00	0
Vermilion River	1998	Development	1.42	0.00	3.20	2
Vermilion River	1998	Fire	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Vermilion River	1998	Forest harvest	587.78	0.94	113.73	71
Vermilion River	1998	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	1998	Other	0.00	0.00	0.00	0
Vermilion River	1999	Beaver	0.00	0.00	0.00	0
Vermilion River	1999	Blowdown	564.10	0.90	113.73	71
Vermilion River	1999	Development	0.00	0.00	0.00	0
Vermilion River	1999	Fire	0.00	0.00	0.00	0
Vermilion River	1999	Forest harvest	440.94	0.71	75.29	47
Vermilion River	1999	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	1999	Other	0.00	0.00	0.00	0
Vermilion River	2000	Beaver	0.00	0.00	0.00	0
Vermilion River	2000	Blowdown	0.00	0.00	0.00	0
Vermilion River	2000	Development	8.30	0.01	4.81	3
Vermilion River	2000	Fire	0.00	0.00	0.00	0
Vermilion River	2000	Forest harvest	593.68	0.95	112.13	70
Vermilion River	2000	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2000	Other	0.00	0.00	0.00	0
Vermilion River	2001	Beaver	49.24	0.08	17.62	11
Vermilion River	2001	Blowdown	0.00	0.00	0.00	0
Vermilion River	2001	Development	0.00	0.00	0.00	0
Vermilion River	2001	Fire	0.00	0.00	0.00	0
Vermilion River	2001	Forest harvest	743.05	1.19	80.09	50
Vermilion River	2001	Forest pathogen	55.26	0.09	8.01	5
Vermilion River	2001	Other	0.00	0.00	0.00	0
Vermilion River	2002	Beaver	0.00	0.00	0.00	0
Vermilion River	2002	Blowdown	0.00	0.00	0.00	0
Vermilion River	2002	Development	1.24	0.00	1.60	1
Vermilion River	2002	Fire	0.00	0.00	0.00	0
Vermilion River	2002	Forest harvest	514.02	0.82	60.87	38
Vermilion River	2002	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2002	Other	0.00	0.00	0.00	0
Vermilion River	2003	Beaver	0.00	0.00	0.00	0
Vermilion River	2003	Blowdown	0.00	0.00	0.00	0
Vermilion River	2003	Development	4.44	0.01	3.20	2
Vermilion River	2003	Fire	0.00	0.00	0.00	0
Vermilion River	2003	Forest harvest	423.49	0.68	81.69	51
Vermilion River	2003	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2003	Other	0.00	0.00	0.00	0
Vermilion River	2004	Beaver	3.06	0.00	1.60	1
Vermilion River	2004	Blowdown	0.00	0.00	0.00	0

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Vermilion River	2004	Development	3.92	0.01	8.01	5
Vermilion River	2004	Fire	0.00	0.00	0.00	0
Vermilion River	2004	Forest harvest	749.45	1.20	96.11	60
Vermilion River	2004	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2004	Other	0.00	0.00	0.00	0
Vermilion River	2005	Beaver	2.64	0.00	3.20	2
Vermilion River	2005	Blowdown	0.00	0.00	0.00	0
Vermilion River	2005	Development	0.77	0.00	1.60	1
Vermilion River	2005	Fire	0.00	0.00	0.00	0
Vermilion River	2005	Forest harvest	740.72	1.19	116.93	73
Vermilion River	2005	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2005	Other	0.00	0.00	0.00	0
Vermilion River	2006	Beaver	6.89	0.01	6.41	4
Vermilion River	2006	Blowdown	18.55	0.03	1.60	1
Vermilion River	2006	Development	12.19	0.02	12.81	8
Vermilion River	2006	Fire	0.00	0.00	0.00	0
Vermilion River	2006	Forest harvest	318.23	0.51	60.87	38
Vermilion River	2006	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2006	Other	0.00	0.00	0.00	0
Vermilion River	2007	Beaver	0.00	0.00	0.00	0
Vermilion River	2007	Blowdown	0.00	0.00	0.00	0
Vermilion River	2007	Development	1.35	0.00	3.20	2
Vermilion River	2007	Fire	0.00	0.00	0.00	0
Vermilion River	2007	Forest harvest	336.81	0.54	59.27	37
Vermilion River	2007	Forest pathogen	5.67	0.01	1.60	1
Vermilion River	2007	Other	1.62	0.00	1.60	1
Vermilion River	2008	Beaver	2.52	0.00	1.60	1
Vermilion River	2008	Blowdown	0.00	0.00	0.00	0
Vermilion River	2008	Development	0.00	0.00	0.00	0
Vermilion River	2008	Fire	0.00	0.00	0.00	0
Vermilion River	2008	Forest harvest	191.96	0.31	28.83	18
Vermilion River	2008	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2008	Other	0.00	0.00	0.00	0
Vermilion River	2009	Beaver	1.70	0.00	1.60	1
Vermilion River	2009	Blowdown	0.00	0.00	0.00	0
Vermilion River	2009	Development	0.00	0.00	0.00	0
Vermilion River	2009	Fire	0.00	0.00	0.00	0
Vermilion River	2009	Forest harvest	159.06	0.25	33.64	21
Vermilion River	2009	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2009	Other	1.30	0.00	1.60	1

Watershed	Year	Disturbance agent	Hectares	Percent	N per 100k ha	Count per location
Vermilion River	2010	Beaver	5.76	0.01	3.20	2
Vermilion River	2010	Blowdown	0.00	0.00	0.00	0
Vermilion River	2010	Development	1.42	0.00	3.20	2
Vermilion River	2010	Fire	0.00	0.00	0.00	0
Vermilion River	2010	Forest harvest	253.28	0.41	49.66	31
Vermilion River	2010	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2010	Other	0.00	0.00	0.00	0
Vermilion River	2011	Beaver	1.05	0.00	1.60	1
Vermilion River	2011	Blowdown	0.00	0.00	0.00	0
Vermilion River	2011	Development	0.99	0.00	1.60	1
Vermilion River	2011	Fire	0.00	0.00	0.00	0
Vermilion River	2011	Forest harvest	231.54	0.37	30.43	19
Vermilion River	2011	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2011	Other	3.05	0.00	1.60	1
Vermilion River	2012	Beaver	15.65	0.03	4.81	3
Vermilion River	2012	Blowdown	0.00	0.00	0.00	0
Vermilion River	2012	Development	0.00	0.00	0.00	0
Vermilion River	2012	Fire	2.07	0.00	1.60	1
Vermilion River	2012	Forest harvest	279.19	0.45	68.88	43
Vermilion River	2012	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2012	Other	0.00	0.00	0.00	0
Vermilion River	2013	Beaver	1.80	0.00	1.60	1
Vermilion River	2013	Blowdown	0.00	0.00	0.00	0
Vermilion River	2013	Development	0.00	0.00	0.00	0
Vermilion River	2013	Fire	0.00	0.00	0.00	0
Vermilion River	2013	Forest harvest	216.14	0.35	41.65	26
Vermilion River	2013	Forest pathogen	0.00	0.00	0.00	0
Vermilion River	2013	Other	0.00	0.00	0.00	0

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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