

e-FILING REPORT COVER SHEET

REPORT NAME: Electric Service Reliability Annual Report for 2018

COMPANY NAME: Idaho Power Company

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes

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If known, please select designation: RE (Electric) RG (Gas) RW (Water)
 RO (Other)

Report is required by: OAR 860-023-0151
 Statute
 Order
 Other

Is this report associated with a specific docket/case? No Yes
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Key words:

If known, please select the PUC Section to which the report should be directed:

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- Electric Rates and Planning
- Natural Gas Rates and Planning
- Utility Safety, Reliability & Security
- Administrative Hearings Division
- Consumer Services Section

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- **Any other Telecommunications Reporting or**
- **Any daily safety or safety incident reports or**
- **Accident reports required by ORS 654.715.**



LISA D. NORDSTROM
Lead Counsel
lnordstrom@idahopower.com

April 19, 2019

Public Utility Commission of Oregon
Filing Center
201 High Street SE, Suite 100
P.O. Box 1088
Salem, Oregon 97301

Re: Idaho Power Company's Electric Service Reliability Annual Report for the
Year 2018

Attention Filing Center:

Pursuant to OAR 860-023-0151, Idaho Power Company herewith transmits for
electronic filing its Electric Service Reliability Annual Report for the Year 2018.

If you have any substantive questions, please call Perry Van Patten at 208-388-
5944.

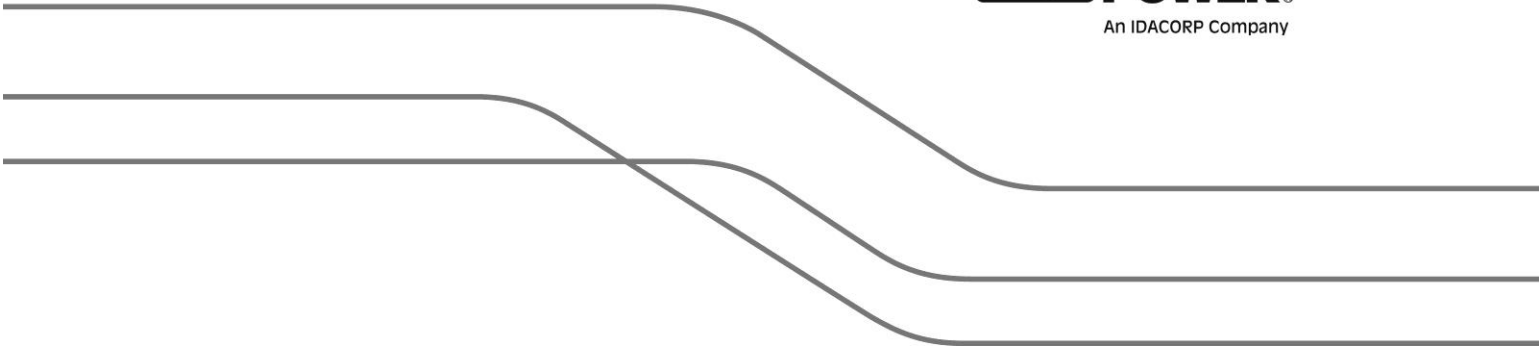
Very truly yours,

A handwritten signature in cursive script that reads "Lisa D. Nordstrom".

Lisa D. Nordstrom

LDN:kkt

Enclosure



**Idaho Power Company
2018 Electric Service
Reliability Annual Report**

May 2019
2019 Idaho Power

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EXECUTIVE SUMMARY

The information in this document presents Idaho Power's 2018 Electric Service Reliability Annual Report in accordance with Oregon Administrative Rules (OAR) 860-023-0151. The report discusses the performance of Idaho Power's Oregon electric service through a narrative summary and includes several tables and figures.

At year-end 2018, Idaho Power served 18,845 customers from 62 distribution circuits served by 30 substations in the far central-eastern portion of Oregon. The composite performance of the circuits in 2018 included the following:

- 651 sustained (greater than five minutes) interruption events
- 18,024 customer interruptions
- 47,002 customer hours out
- System Average Interruption Frequency Index (SAIFI) of 0.96
- System Average Interruption Duration Index (SAIDI) of 2.49 hours
- Momentary Average Interruption Event Frequency Index (MAIFI_E) of 3.30

Idaho Power used the calculation of a threshold for major event days (MEDs) as defined in the Institute of Electrical and Electronic Engineers (IEEE) Standard 1366 and monitored its Oregon service territory for MED occurrences. All the indices at the circuit and system levels in this report are shown with and without MED events for years 2014-2018. Idaho Power's 2018 threshold in Oregon for a major event day (T_{MED}) per the IEEE 1366 definition was a daily SAIDI of 18.03 minutes per customer. With the additional criterion of a daily customer average interruption duration index (CAIDI) of 5 hours (300 minutes) per OAR 860-023-0161, Idaho Power experienced 0 major event days in its Oregon service territory in 2018. Idaho Power's calculated T_{MED} for 2019 in Oregon is 14.11 minutes per customer. The calculation of the T_{MED} and identification of major event days is done while considering all of Idaho Power's Oregon customers.

Compared to 2017, Idaho Power's Oregon service territory SAIFI decreased by 0.28 interruptions per customer from 1.23 in 2017 to 0.96 in 2018. Excluding major events, SAIFI decreased by 0.22 from 1.18 in 2017 to 0.96 in 2018. The average duration of sustained outages also decreased compared to last year; SAIDI decreased by 1.2 hours per customer from 3.69 in 2017 to 2.49 in 2018. The decrease was less dramatic when excluding major events, however, as 2018 saw a decrease of 0.87 hours per customer over 2017 (3.37 to 2.49). Finally, MAIFI_E decreased in 2018 compared to 2017 by 0.52 momentary interruption events per customer from 3.82 in 2017 to 3.3 in 2018.

The attached charts and tables show Idaho Power's Oregon system performance over the previous five years for SAIFI, SAIDI and MAIFI_E at the system and circuit level in accordance with OAR 860-023-0151 (2)(a). In addition to the reliability indices, a summary of sustained interruption causes is shown at the system level in accordance with OAR 860-023-0151 (2)(b). A table translating Idaho Power's cause categories to the cause categories listed in OAR 860-023-151 (2)(b) can be found in the Appendix. The Appendix also includes supplemental information such as substation, voltage, operating area and customers connected for each distribution circuit in accordance with OAR 860-023-0151 (2)(h). A map is also provided which shows the distribution

circuits in Idaho Power's service territory with Oregon customers in accordance with OAR 860-023-0151 (2)(g).

Idaho Power continues to collect detailed outage information for all sustained outage events through its Outage Management System (OMS). Historical data from the OMS is stored and circuit performance is analyzed for the prioritization of capital projects to improve reliability. Idaho Power also continues to utilize data from its Smart Grid Monitoring (SGM) system to calculate MAIFI_E as it has in past years.

Idaho Power continues to implement programs and projects to improve customer service and electric service reliability. Company programs related to electric service reliability include the annual Oregon safety inspection/reliability patrols, the line clearing and vegetation management program, the pole inspection and treatment program, and annual maintenance and capital projects that replace aging assets and improve reliability.

DEFINITIONS

CAIDI – Customer Average Interruption Duration Index; the average duration that a customer experienced per sustained outage (greater than 5 minutes).

CHO – Customer Hours Out; CMI divided by 60.

CI – Customer Interruptions; the total number of customer interruptions from sustained outages (greater than 5 minutes).

CMI – Customer Minutes of Interruption; the total number of customer minutes of interruption from sustained outages (greater than 5 minutes). This is calculated as the product of customer interruptions and outage duration in minutes.

IEEE – The Institute of Electrical and Electronic Engineers.

IEEE 1366 – The Institute of Electrical and Electronic Engineers (IEEE) Standard 1366 entitled *IEEE Guide for Electric Power Distribution Reliability Indices* (the 2012 edition), approved on May 14, 2012 by IEEE-SA Standards Board.

MAIFI_E – Momentary Average Interruption Event Frequency Index; the average number of momentary interruption events per customer (less than or equal to 5 minutes).

Major Event – An event that exceeds the reasonable design and/or operational limits of the electric power system. A major event includes at least one major event day (MED).

MED – Major Event Day; a day when the daily SAIDI exceeds a predefined threshold value.

MedEx – Major Event Day Excluded; this suffix is used after a reliability index to indicate major event days are excluded. For example, SAIFI MedEx is SAIFI excluding major event days.

Operating Area – Idaho Power’s customers in Oregon are split into two operating areas: 1) the Jordan Valley region of the reporting area served by the Canyon Operations Center in Caldwell, ID and 2) the rest of the reporting area served by the Western Operations Center in Payette, ID. Approximately 97% of Idaho Power’s customers in Oregon are within the Western operating area, while the remaining 3% of Idaho Power’s customers in Oregon are within the Canyon operating area. For information about which operating area each distribution circuit is in, refer to the Appendix.

Reporting Area – Idaho Power’s entire service area in Oregon.

SAIDI – System Average Interruption Duration Index; the average duration from all sustained outages that a customer experienced per year (greater than 5 minutes).

SAIFI – System Average Interruption Frequency Index; the average frequency of sustained outages that a customer experienced per year (greater than 5 minutes).

SGM – Smart Grid Monitor; refers to Idaho Power’s system for monitoring momentary interruption events on its distribution network.

T_{MED} – A major event day threshold value.

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SYSTEM SAIDI, SAIFI AND MAIFI_E

System SAIDI

Year	2014	2015	2016	2017	2018
SAIDI	3.43	6.18	2.88	3.69	2.49
SAIDI MedEx	3.16	3.60	2.88	3.37	2.49

Table 1 Five Years of System SAIDI

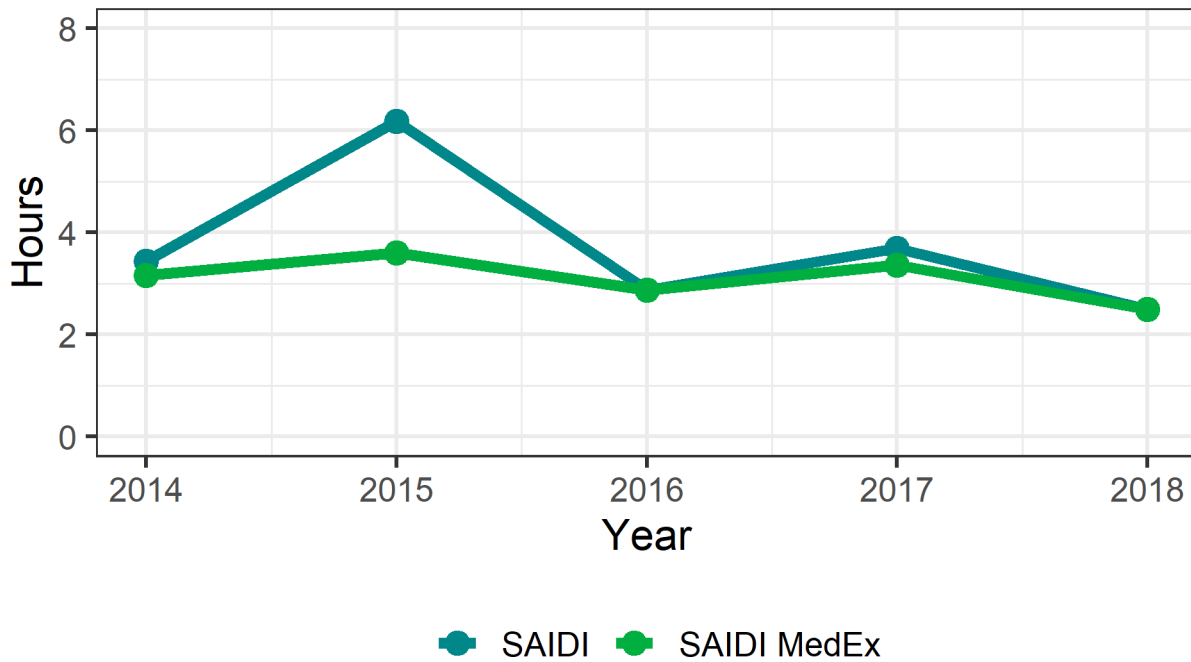


Figure 1 Five Years of System SAIDI

System SAIFI

Year	2014	2015	2016	2017	2018
SAIFI	1.63	1.95	1.05	1.23	0.96
SAIFI MedEx	1.58	1.74	1.05	1.18	0.96

Table 2 Five Years of System SAIFI

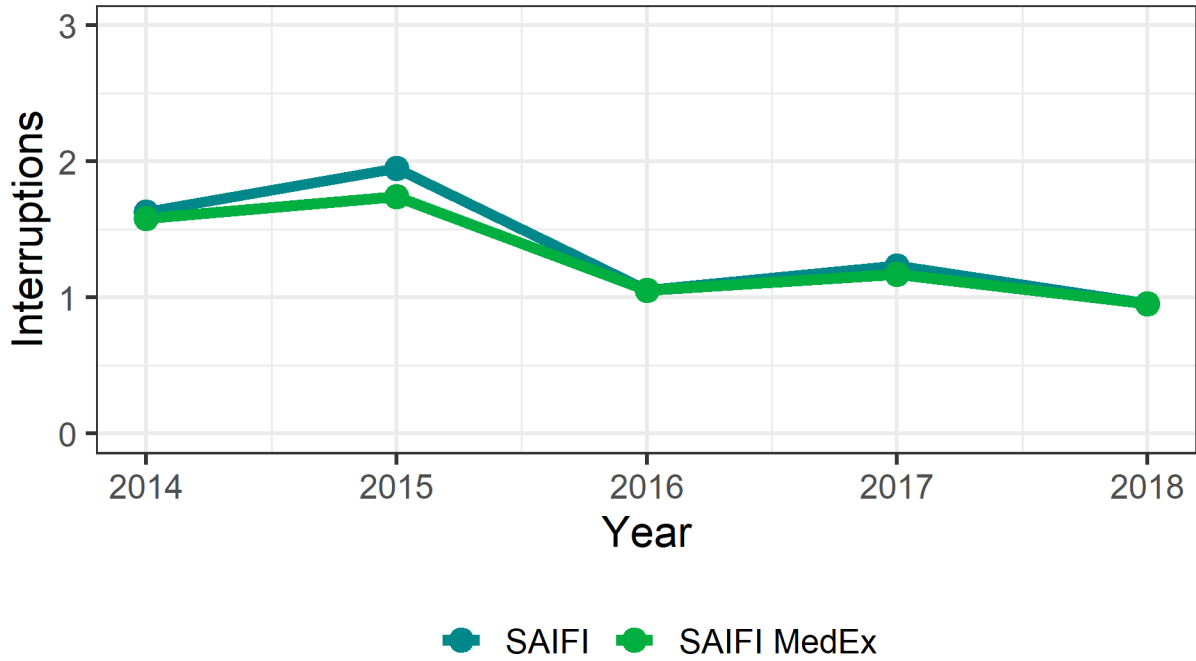


Figure 2 Five Years of System SAIFI

System MAIFI_E

Year	2014	2015	2016	2017	2018
MAIFI _E	2.48	3.86	2.83	3.82	3.30
MAIFI _E MedEx	2.46	3.72	2.83	3.77	3.30

Table 3 Five Years of System MAIFI_E

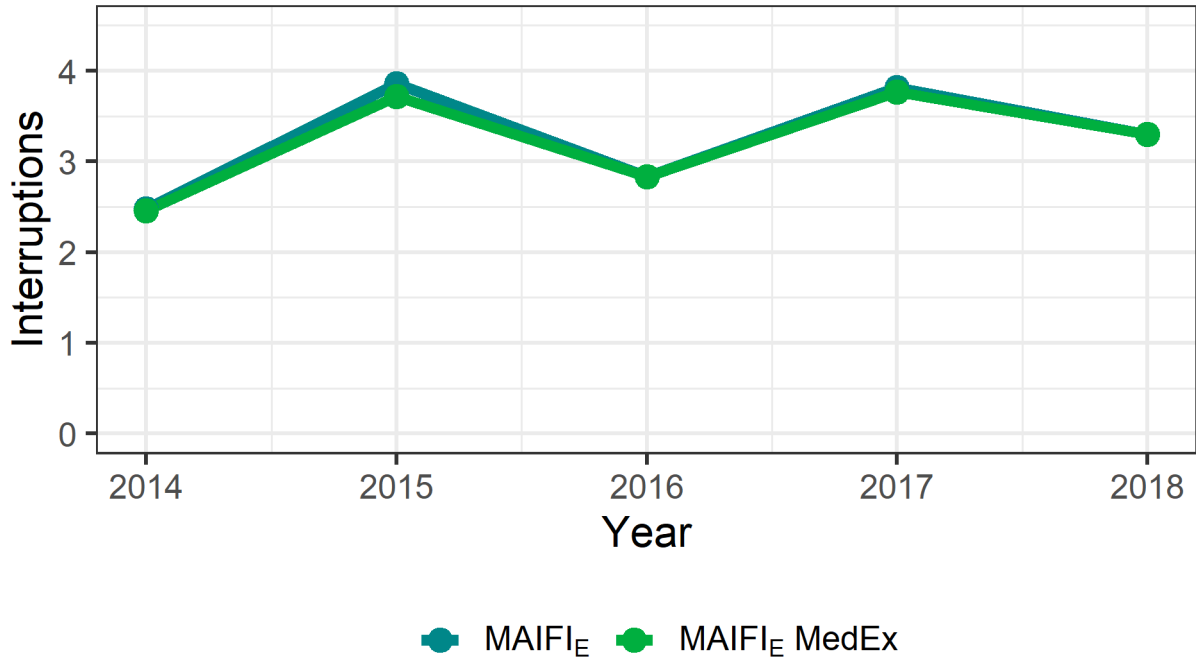


Figure 3 Five Years of System MAIFI_E

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Sustained Interruption Event Causes

Cause	Number of Sustained Interruption Events					Percent of Total Sustained Interruption Events				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Distribution – Equipment	140	151	163	277	159	17.3%	20.2%	23.7%	27.5%	24.4%
Distribution – Lightning	20	24	14	17	10	2.5%	3.2%	2.0%	1.7%	1.5%
Distribution – Other	36	40	41	63	46	4.5%	5.3%	6.0%	6.3%	7.1%
Distribution – Planned	237	140	148	114	91	29.4%	18.7%	21.5%	11.3%	14.0%
Distribution – Public	46	43	66	77	59	5.7%	5.7%	9.6%	7.6%	9.1%
Distribution – Unknown	63	90	67	97	72	7.8%	12.0%	9.8%	9.6%	11.1%
Distribution – Vegetation	47	44	28	118	79	5.8%	5.9%	4.1%	11.7%	12.1%
Distribution – Weather (Non-Lightning)	46	40	4	70	16	5.7%	5.3%	0.6%	7.0%	2.5%
Distribution – Wildlife	92	92	111	127	93	11.4%	12.3%	16.2%	12.6%	14.3%
Loss of Supply – Substation	35	23	8	11	7	4.3%	3.1%	1.2%	1.1%	1.1%
Loss of Supply – Transmission	45	61	37	36	19	5.6%	8.2%	5.4%	3.6%	2.9%
Total	807	748	687	1,007	651	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4 Five Years of Sustained Interruption Event Causes

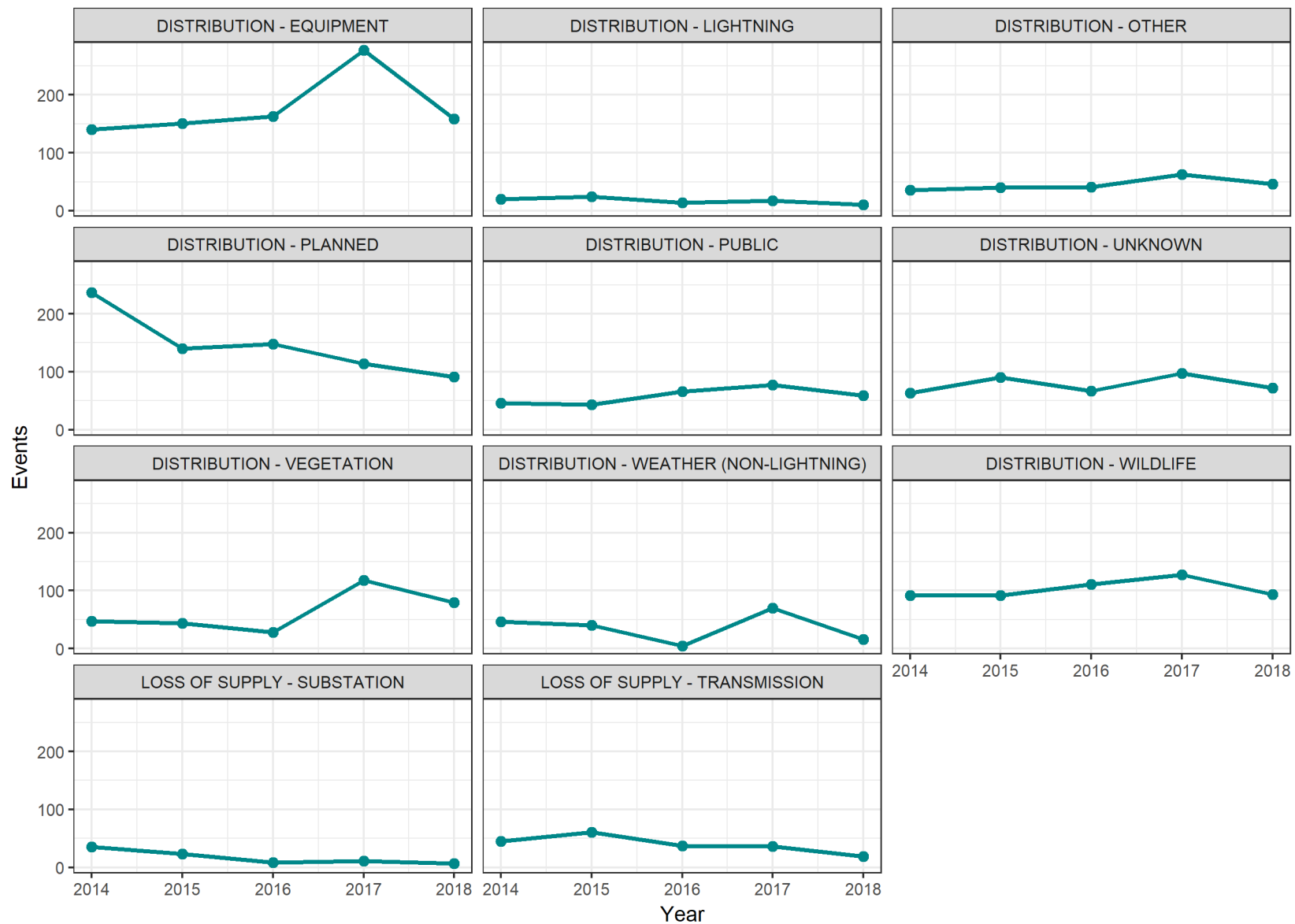


Figure 4 Five Years of Sustained Interruption Events by Cause

Cause	Events	Hours Out	Event Ranking	Hours Out Ranking
Distribution – Equipment	159	534	1	3
Distribution – Lightning	10	26	10	9
Distribution – Other	46	791	7	1
Distribution – Planned	91	684	3	2
Distribution – Public	59	179	6	7
Distribution – Unknown	72	278	5	5
Distribution – Vegetation	79	286	4	4
Distribution – Weather (non-Lightning)	16	22	9	10
Distribution – Wildlife	93	214	2	6
Loss of Supply – Substation	7	10	11	11
Loss of Supply – Transmission	19	107	8	8
Total	651	3,101		

Table 5 2018 Sustained Interruption Event Cause Ranking

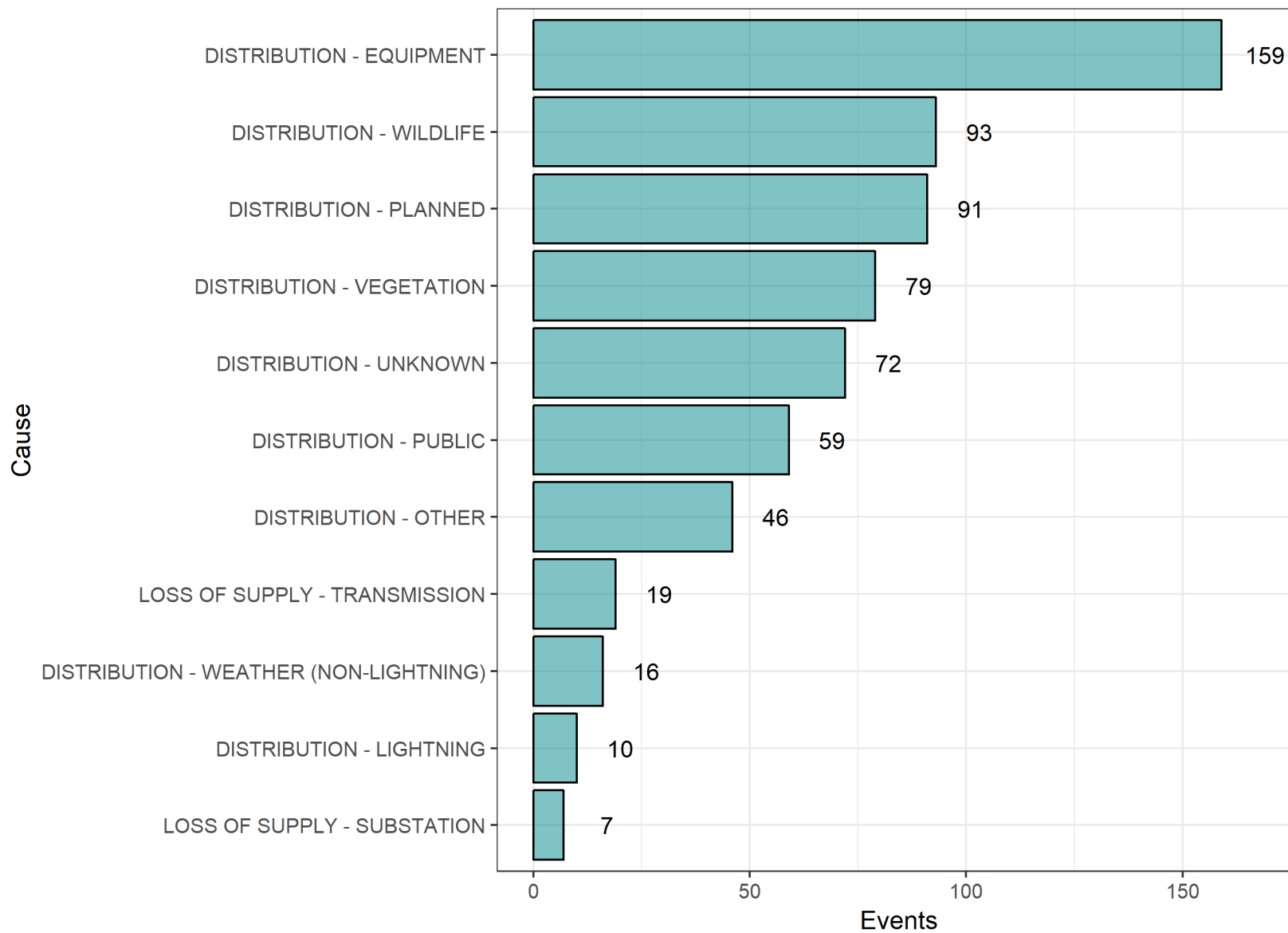


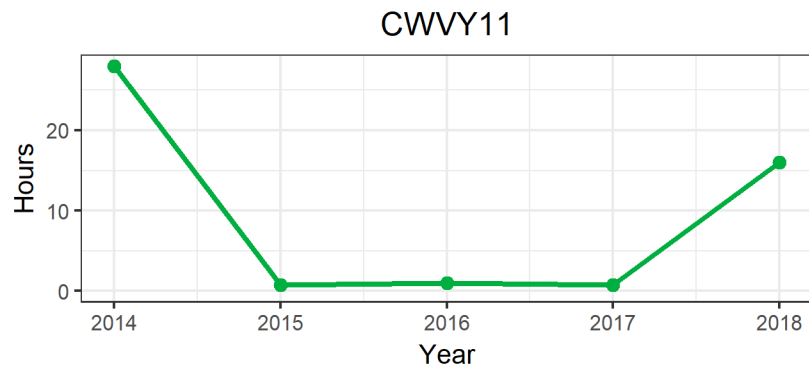
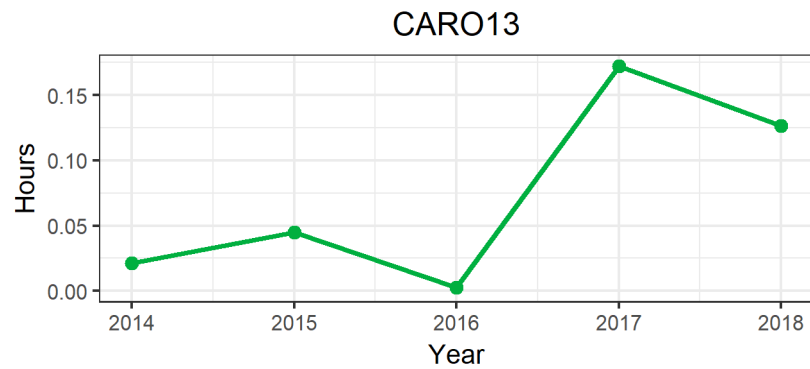
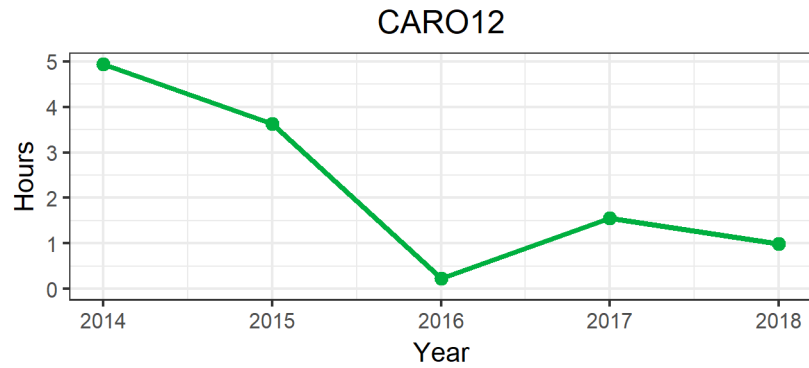
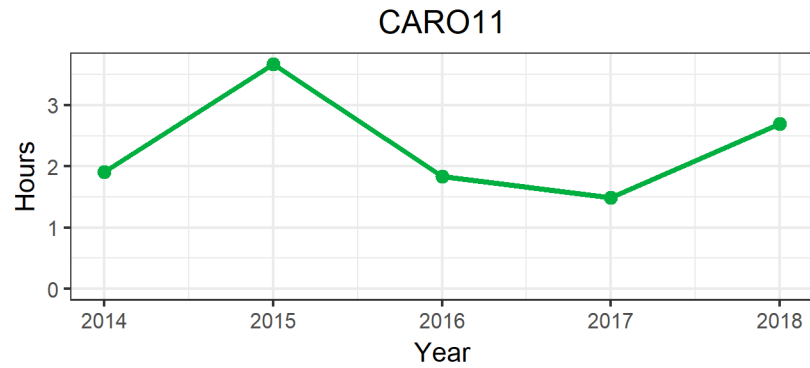
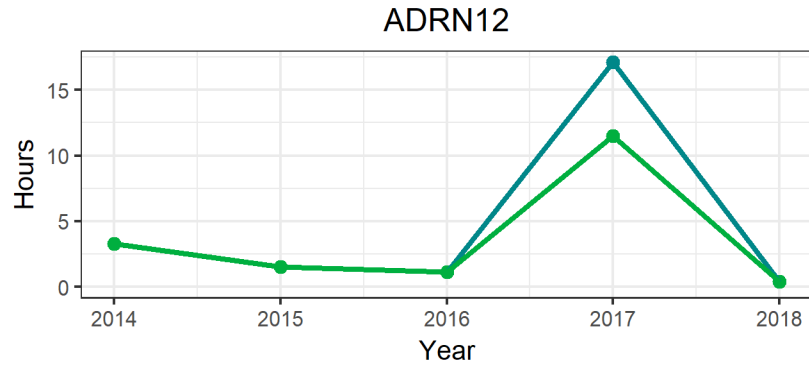
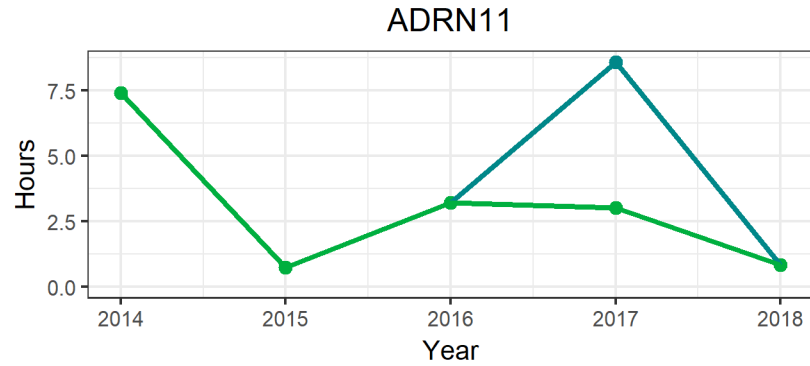
Figure 5 2018 Ranking of Sustained Interruption Event Causes

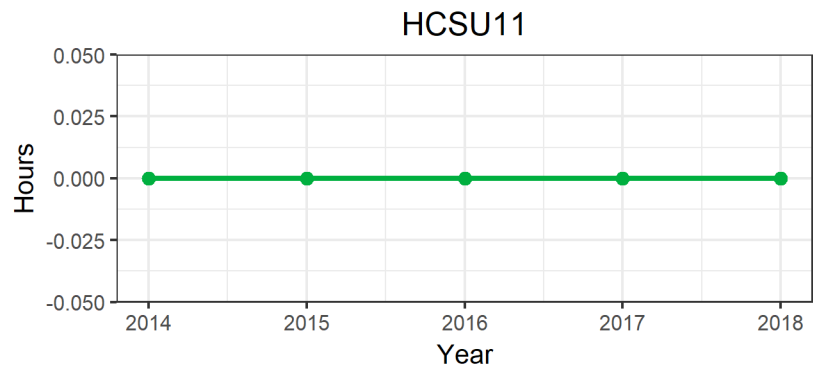
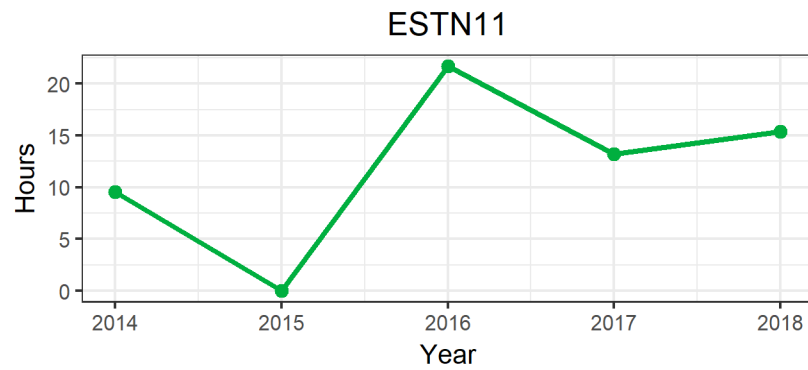
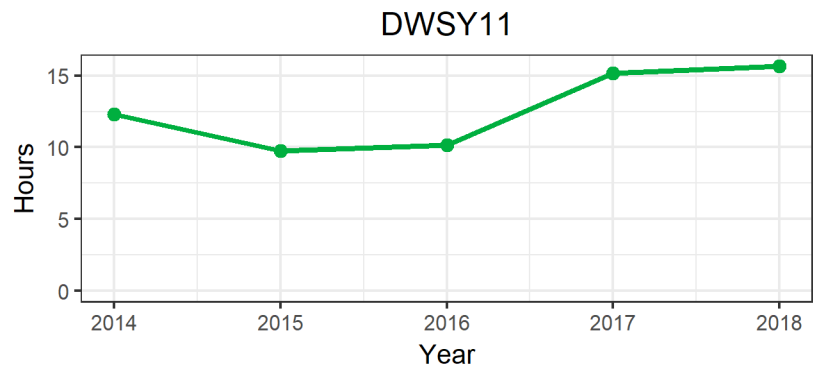
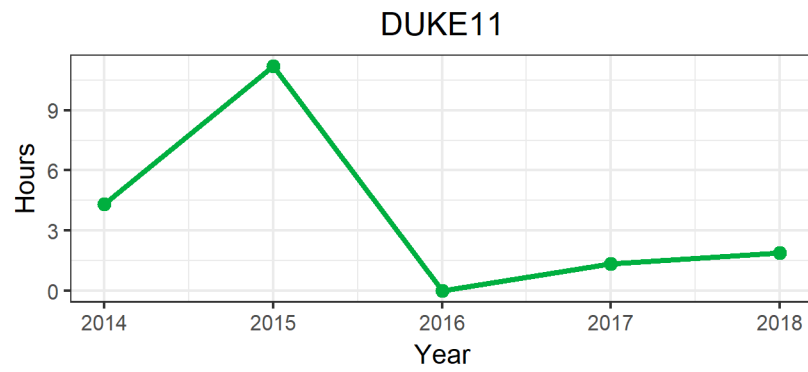
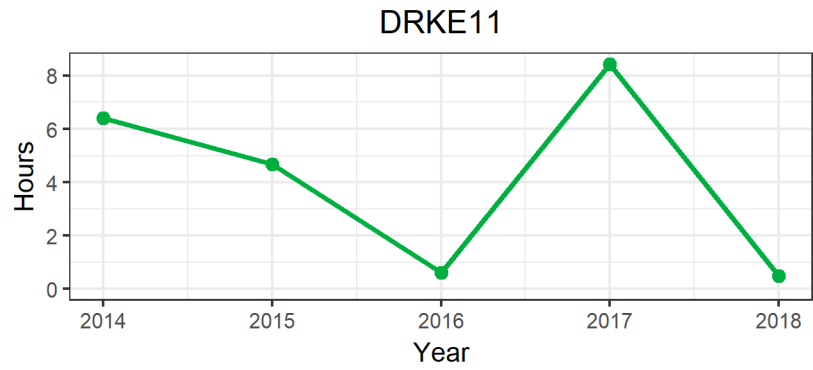
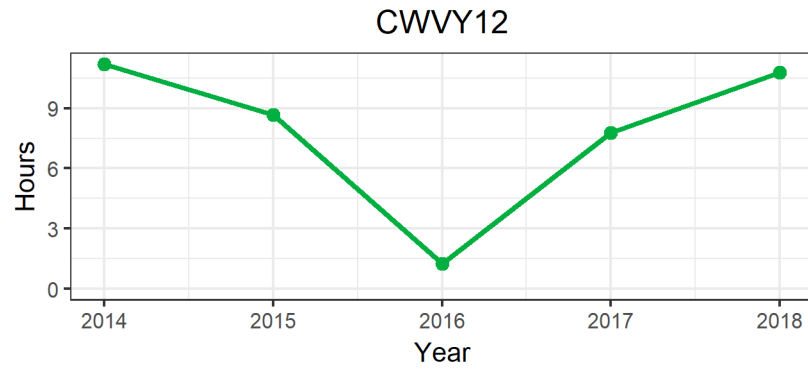
CIRCUIT SAIDI, SAIFI AND MAIFI_E

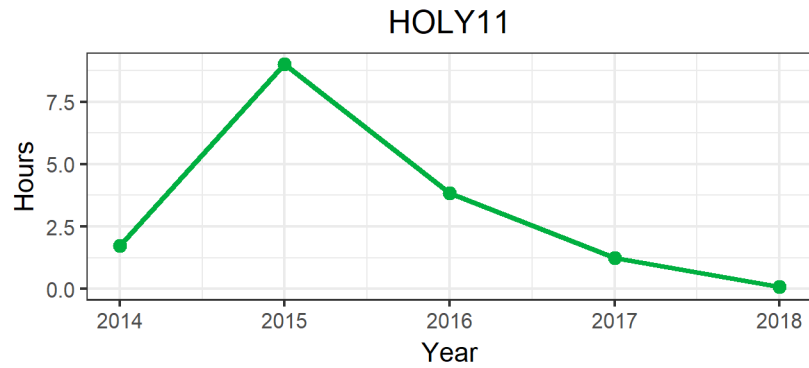
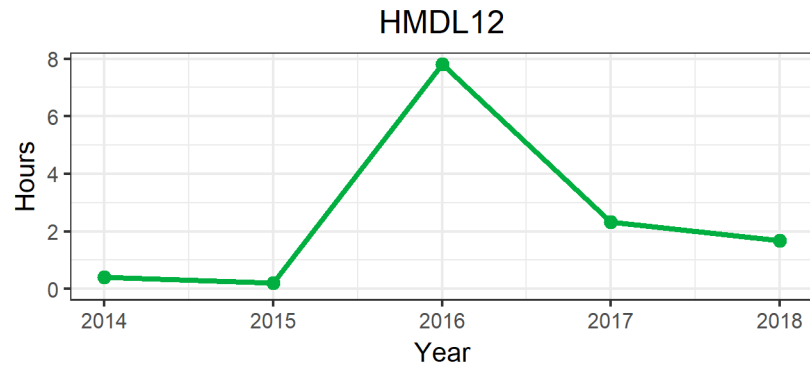
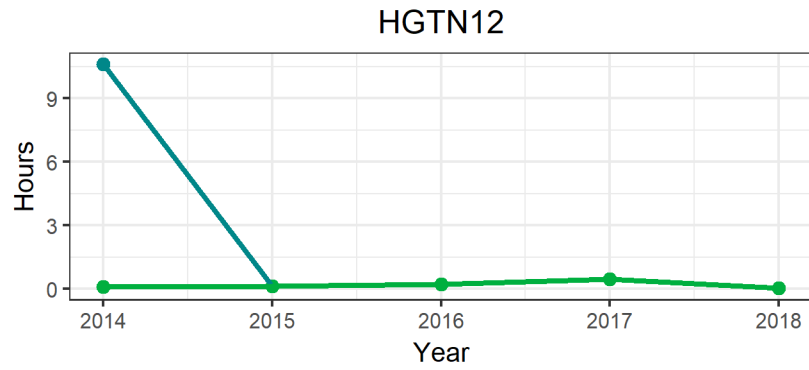
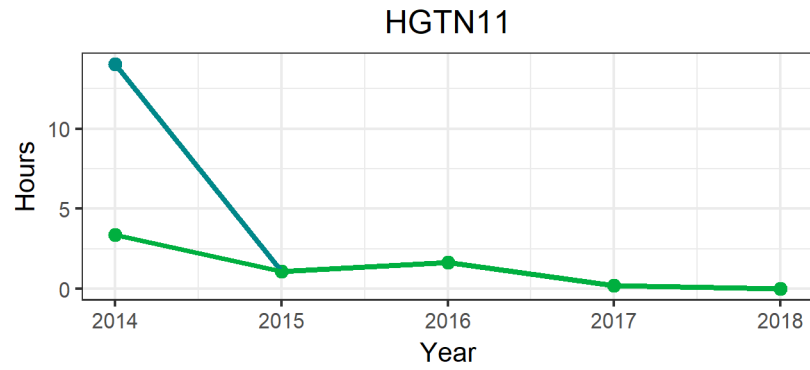
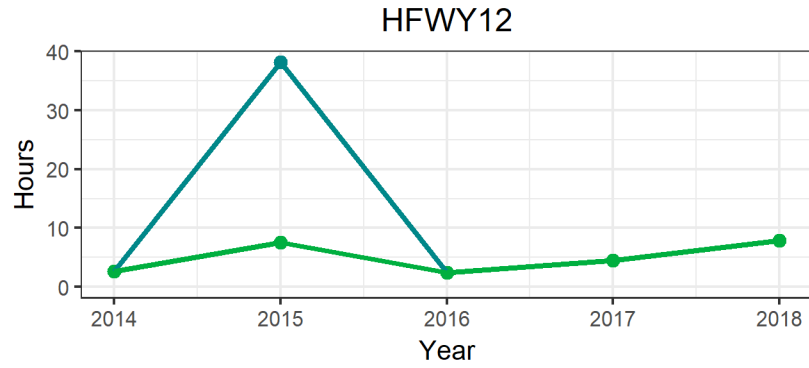
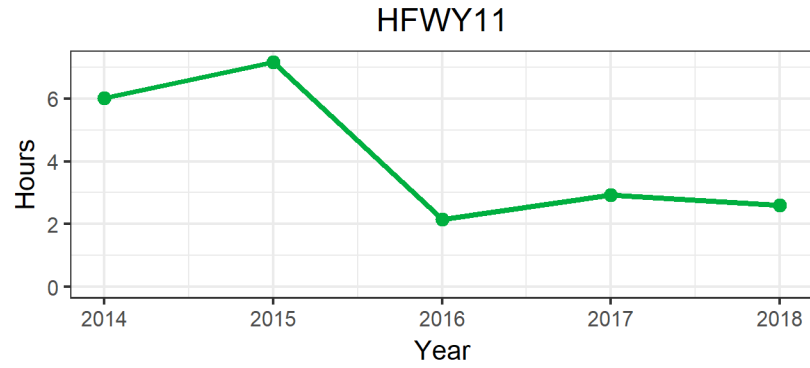
Five Years of Circuit SAIDI

Circuit	2014	2015	2016	2017	2018	2018 MedEx
ADRN11	7.40	0.73	3.22	8.60	0.83	0.83
ADRN12	3.30	1.52	1.12	17.14	0.41	0.41
CARO11	1.91	3.67	1.83	1.49	2.70	2.70
CARO12	4.95	3.63	0.23	1.56	0.99	0.99
CARO13	0.02	0.05	0.00	0.17	0.13	0.13
CWVY11	28.03	0.70	0.95	0.74	16.00	16.00
CWVY12	11.21	8.68	1.26	7.78	10.77	10.77
DRKE11	6.42	4.68	0.61	8.44	0.48	0.48
DUKE11	4.31	11.21	0.00	1.34	1.90	1.90
DWSY11	12.29	9.74	10.16	15.18	15.68	15.68
ESTN11	9.55	0.00	21.72	13.21	15.40	15.40
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	6.02	7.17	2.14	2.94	2.60	2.60
HFVY12	2.60	38.25	2.42	4.50	7.87	7.87
HGTN11	14.05	1.08	1.66	0.21	0.01	0.01
HGTN12	10.62	0.14	0.21	0.47	0.03	0.03
HMDL12	0.40	0.21	7.82	2.32	1.67	1.67
HOLY11	1.73	9.03	3.85	1.23	0.09	0.09
HOLY12	0.02	4.09	1.58	7.60	0.41	0.41
HOLY13	0.66	3.29	1.68	0.19	1.35	1.35
HOPE11	9.46	1.13	4.93	1.87	3.32	3.32
HRPR11	12.42	2.88	6.18	8.10	2.03	2.03
HRPR12	26.47	8.20	12.11	21.23	6.02	6.02
JMSN11	4.95	3.17	0.82	0.60	2.24	2.24
JMSN12	19.63	4.07	1.35	2.07	1.10	1.10
JNTA11	14.74	5.92	8.95	6.65	3.93	3.93
JNTA12	18.42	11.28	12.95	7.56	4.73	4.73
JNVY11	3.83	67.85	35.11	11.30	2.59	2.59
JNVY12	2.05	71.83	7.75	10.75	1.70	1.70
JNVY31	6.24	86.67	24.13	14.50	3.37	3.37
LIME11	10.02	5.65	3.84	27.62	5.65	5.65
MRBT41	4.82	0.29	0.67	11.96	2.78	2.78
MRBT42	4.62	0.40	0.29	1.54	2.65	2.65
NYSA11	2.39	2.59	0.89	0.37	0.21	0.21
NYSA12	2.58	1.31	13.97	6.95	1.87	1.87
NYSA13	4.01	0.23	6.68	0.27	0.22	0.22
NYSA14	3.72	0.11	3.65	0.12	0.22	0.22
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	0.29	0.26	0.94	1.12	0.78	0.78
OIDA12	1.47	1.92	0.70	2.80	0.00	0.00
ONTO14	0.00	0.06	0.42	0.54	0.00	0.00
ONTO18	0.05	0.26	0.21	0.12	1.48	1.48
ONTO19	0.20	3.15	0.40	0.69	2.05	2.05
ONTO20	0.68	0.23	1.05	0.64	0.51	0.51
ONTO23	0.00	0.11	0.52	4.07	0.28	0.28
ONTO24	2.75	3.46	0.46	5.23	11.00	11.00
ONTO25	0.03	0.25	0.13	0.37	0.12	0.12
OYDM11	0.00	0.00	0.00	3.48	0.28	0.28
PNCK11	1.47	7.45	12.71	0.26	0.69	0.69
PNCK12	0.00	5.63	6.73	3.17	0.00	0.00
PRMA12	14.63	3.45	13.68	7.22	5.04	5.04
PRMA42	8.39	4.75	3.59	12.84	7.15	7.15
RKVL11	7.77	129.17	9.57	4.61	1.29	1.29
UNTY11	8.33	2.15	34.95	27.58	12.35	12.35
UNTY12	2.81	7.45	3.44	17.21	11.57	11.57
VALE11	2.53	3.82	0.17	1.09	0.92	0.92
VALE12	0.00	0.00	0.00	1.07	0.15	0.15
VALE13	3.64	1.06	0.52	3.68	0.69	0.69
VALE14	4.65	13.76	0.11	2.93	6.49	6.49
VALE15	2.42	3.49	4.94	1.82	2.72	2.72
WESR13	0.24	0.93	0.29	3.21	1.89	1.89
WESR14	7.20	2.81	0.85	12.55	6.98	6.98

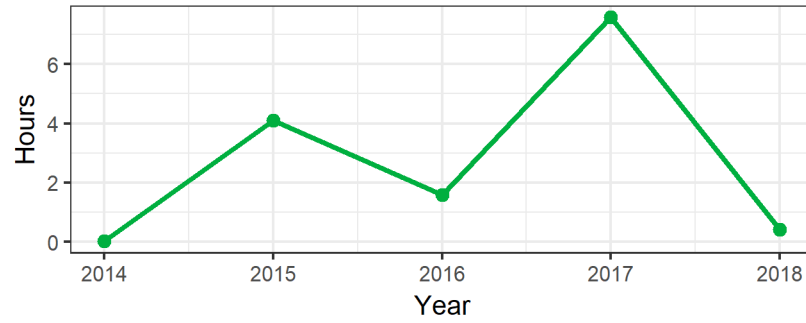
Table 6 Five Years of Circuit SAIDI



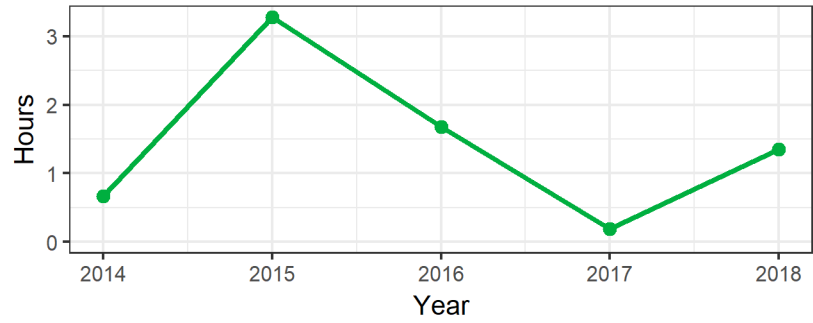




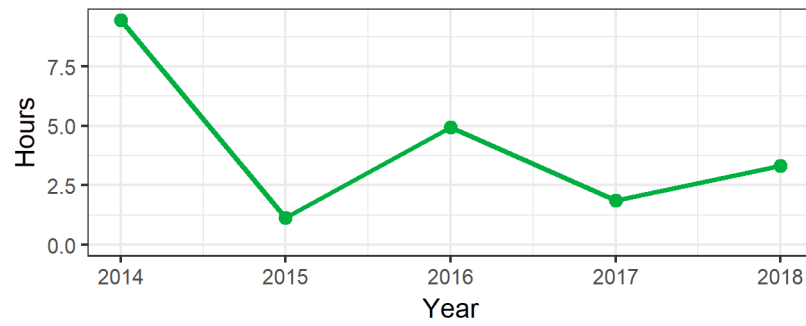
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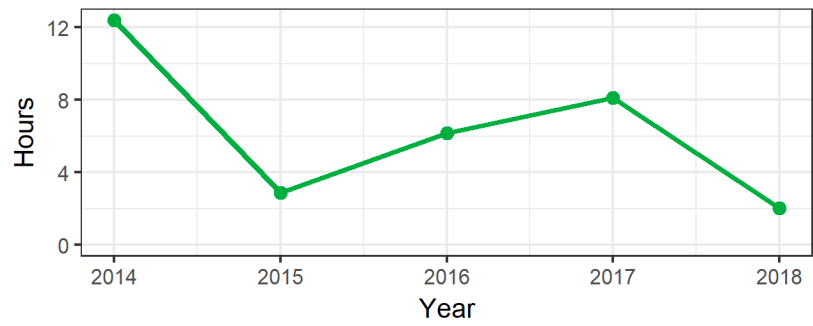
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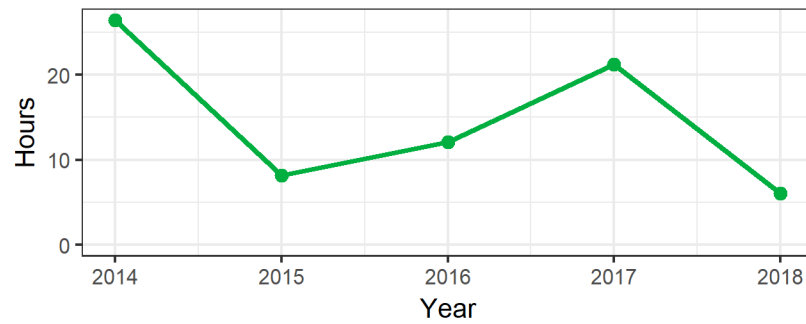
HOPE11



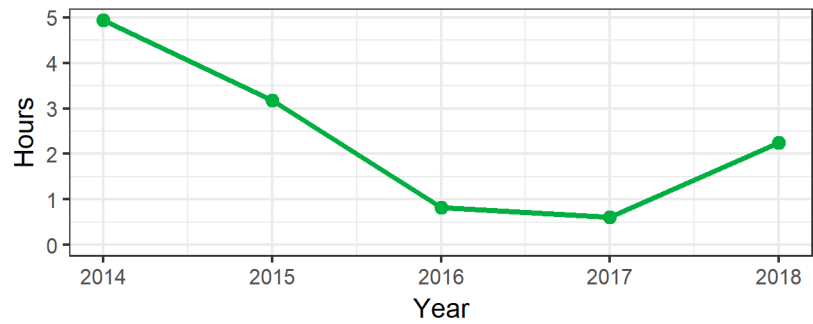
HRPR11

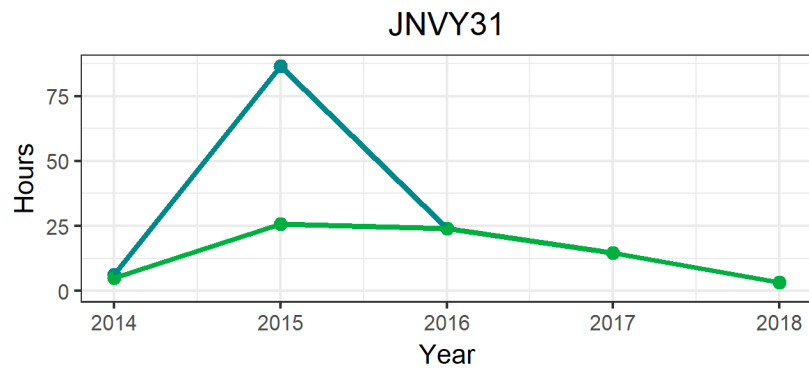
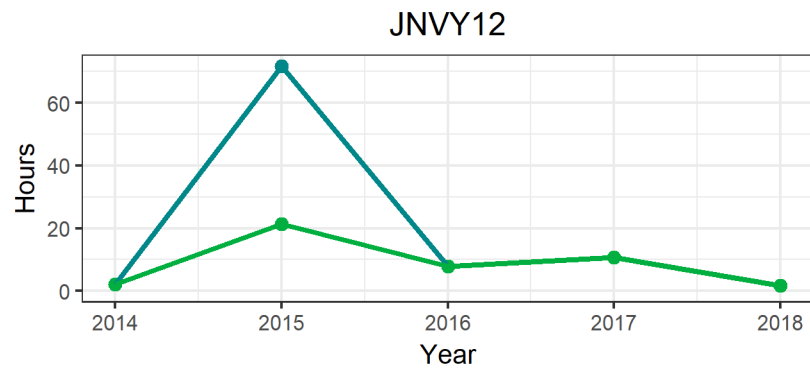
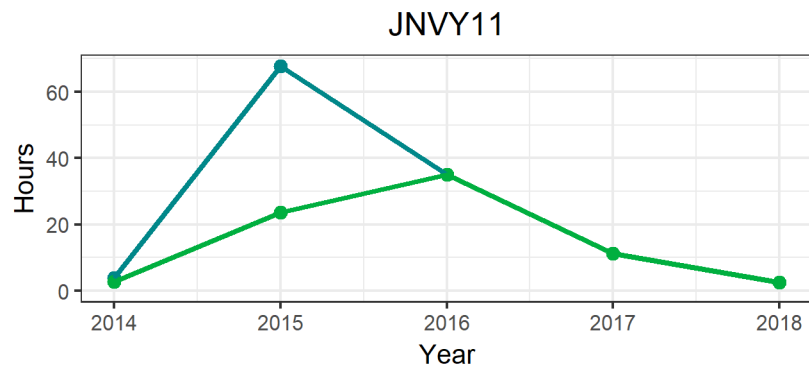
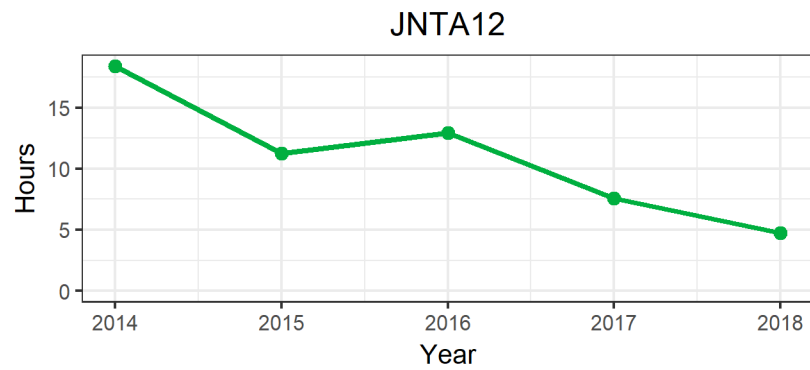
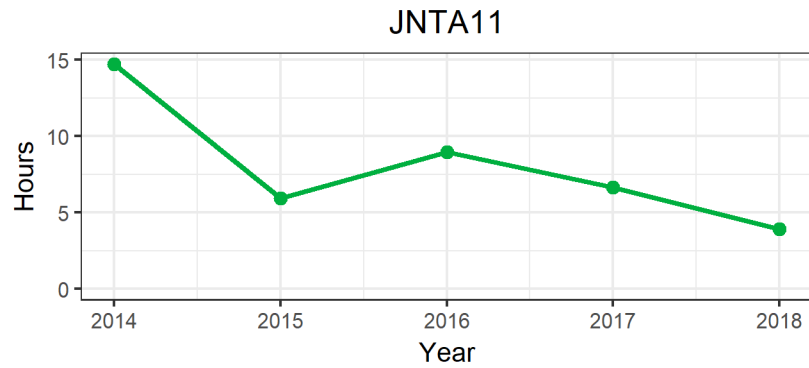
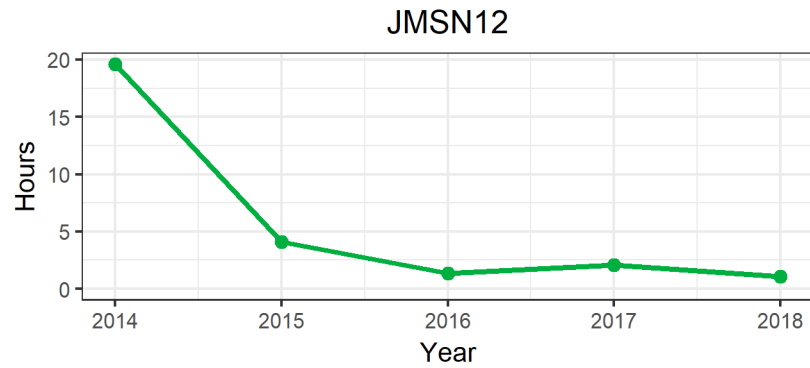


HRPR12

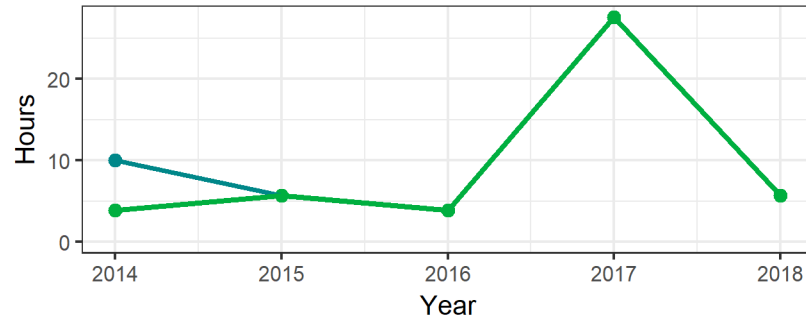


JMSN11

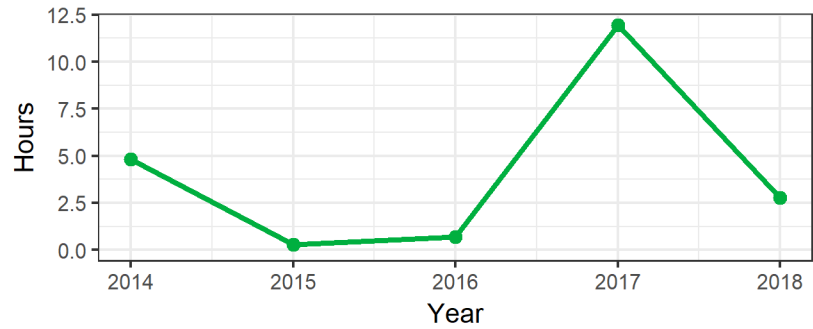




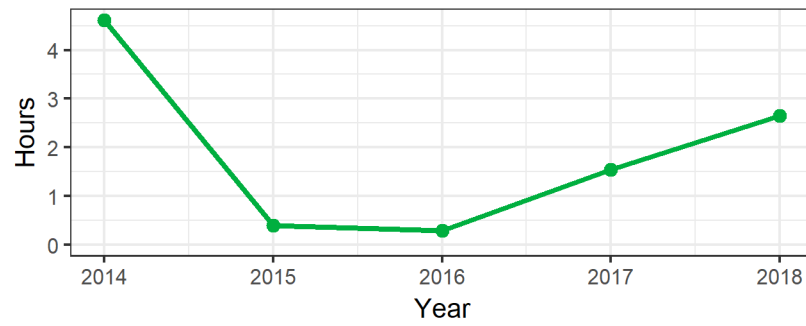
LIME11



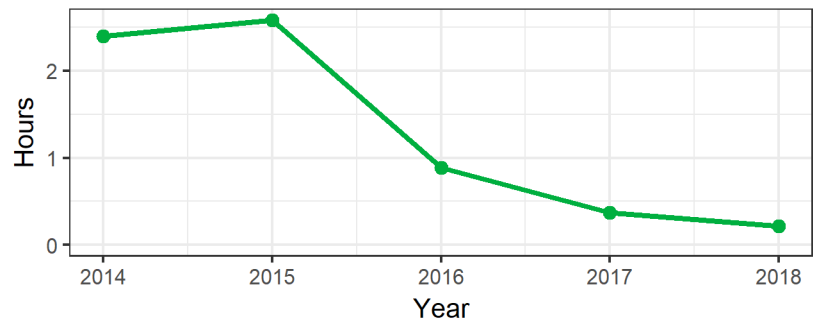
MRBT41



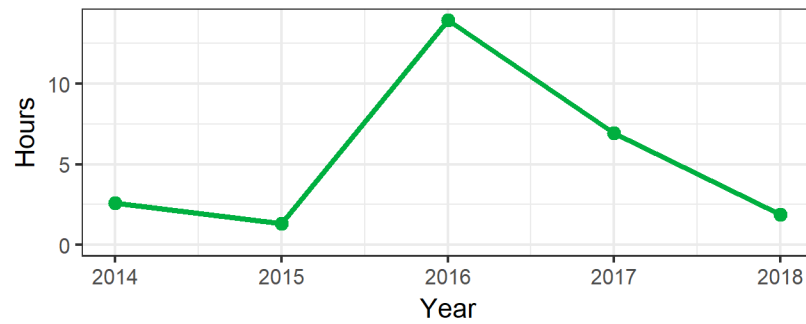
MRBT42



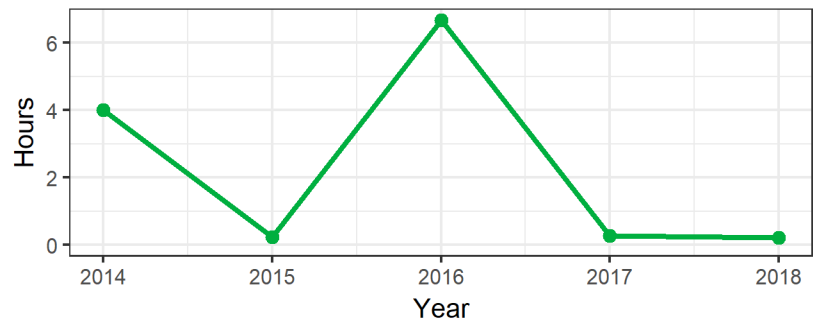
NYSA11

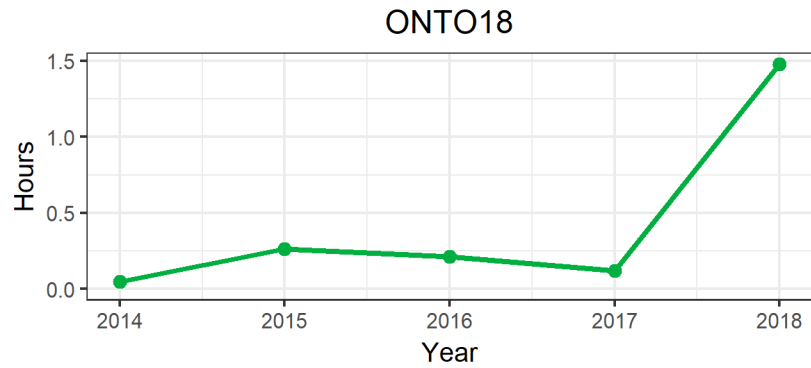
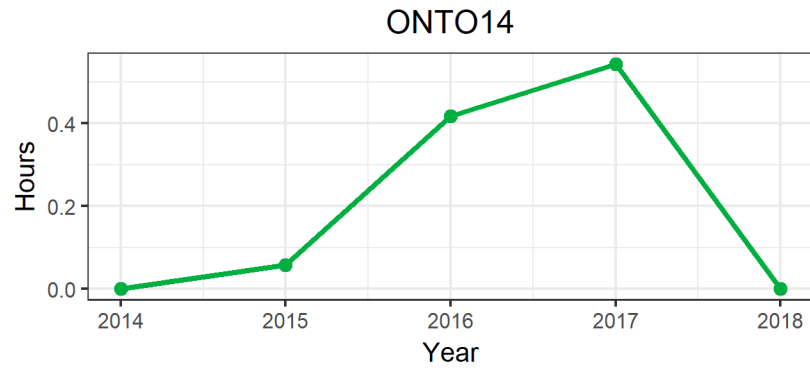
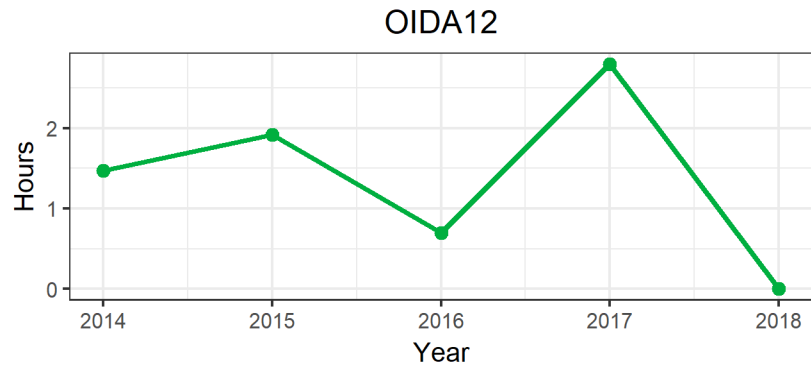
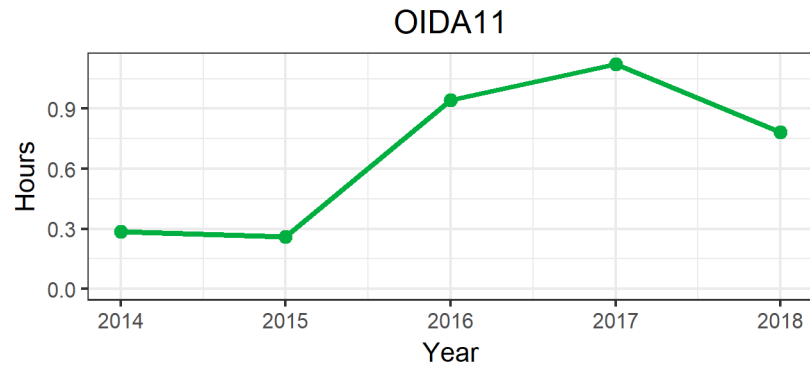
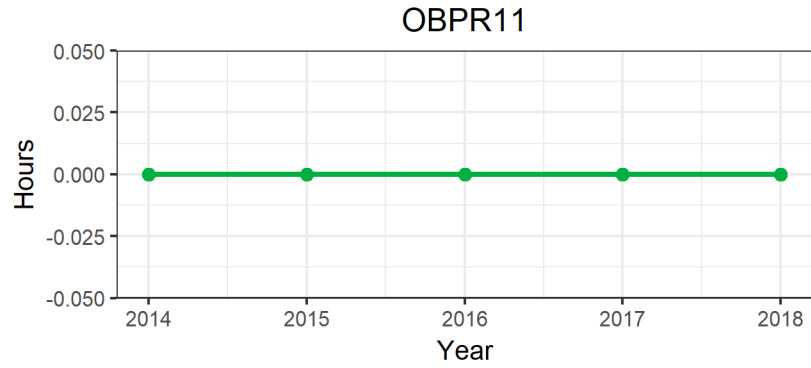
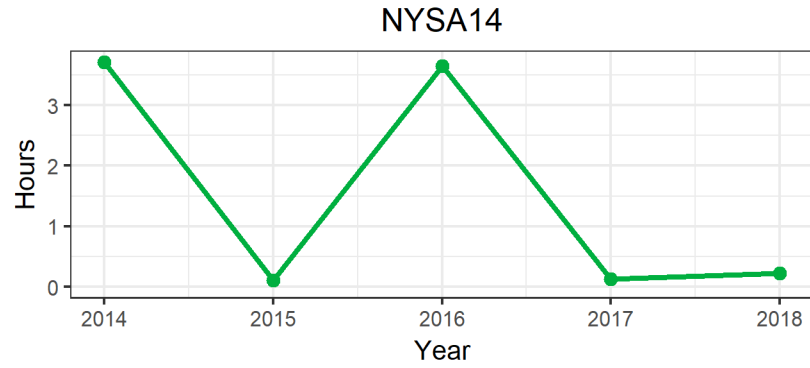


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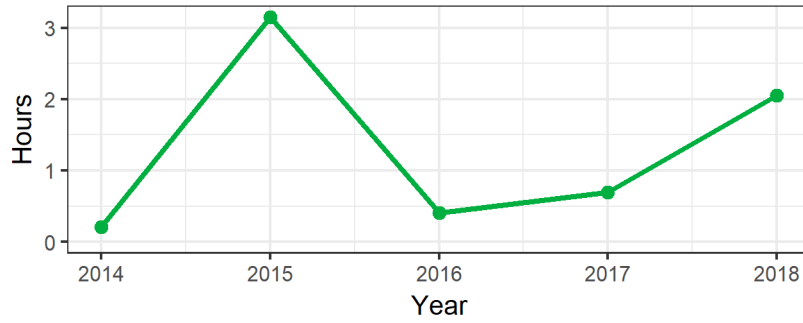


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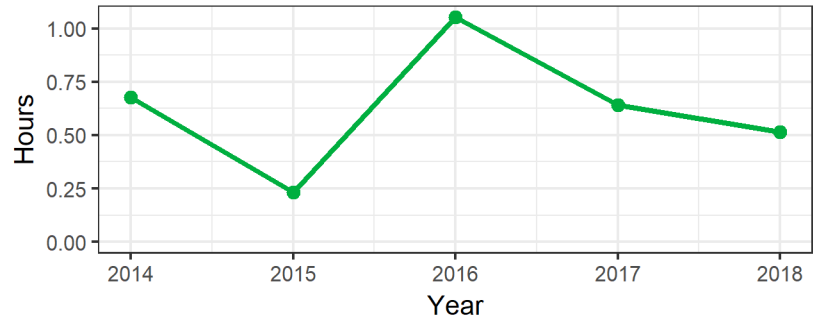




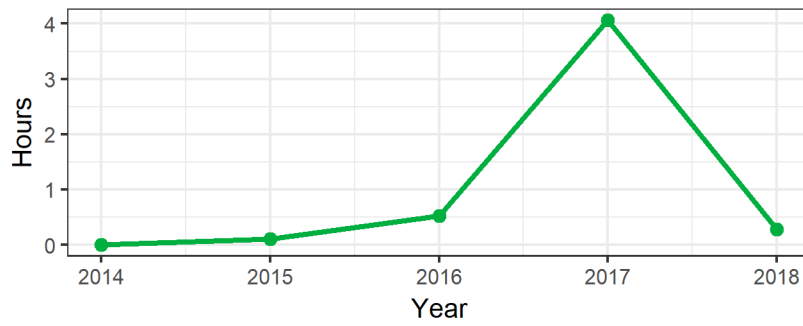
ONTO19



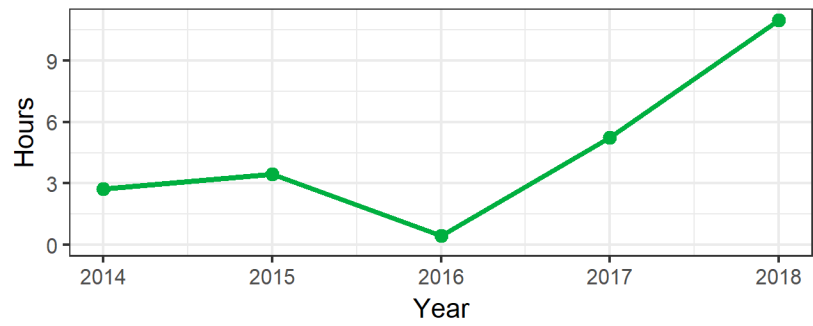
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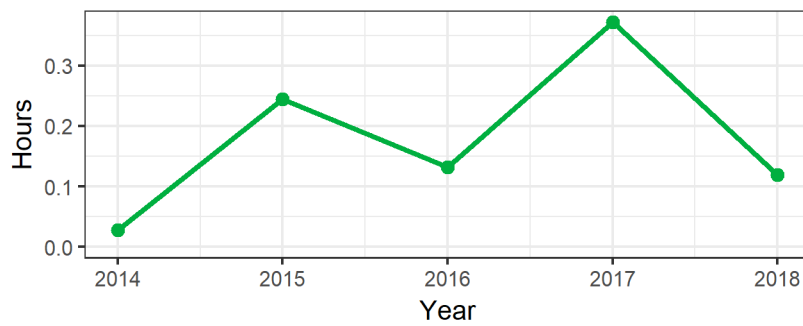
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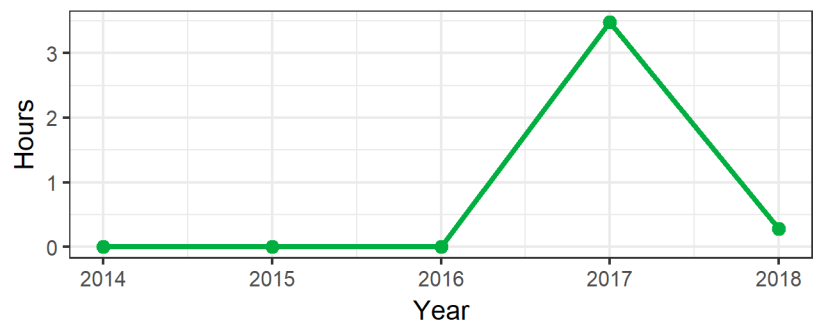
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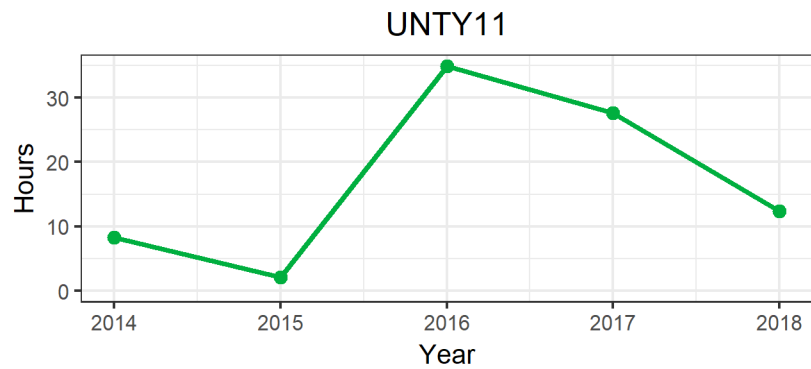
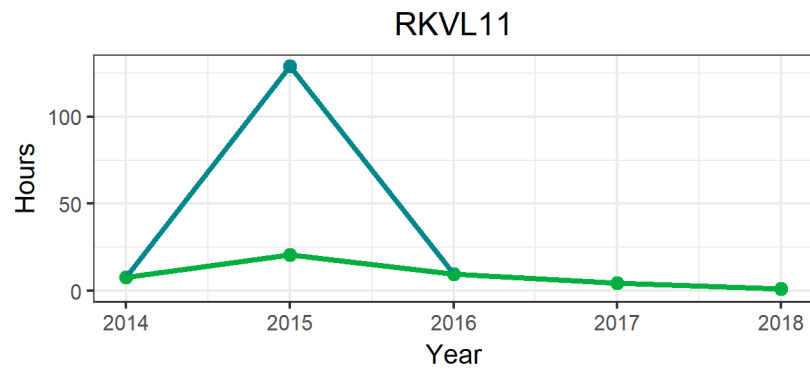
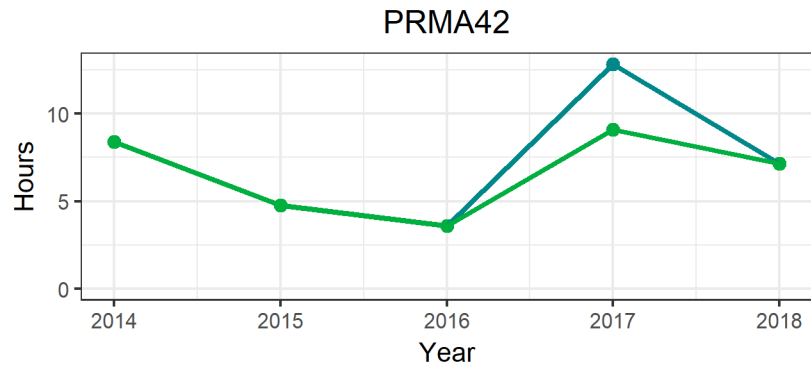
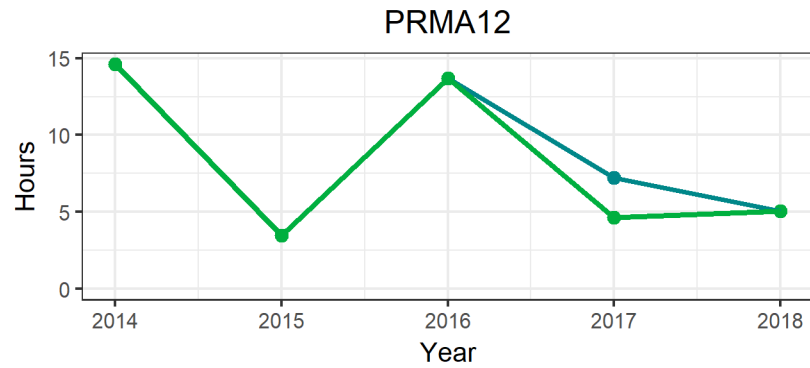
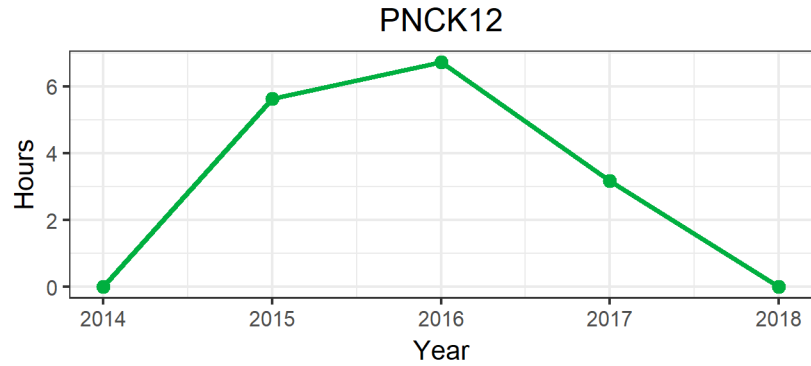
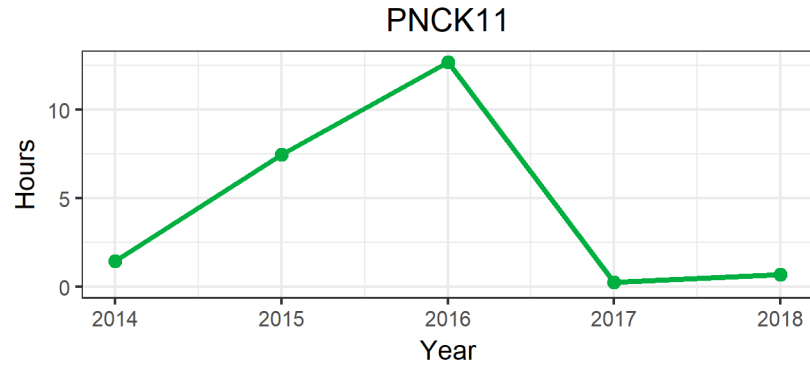


ONTO25

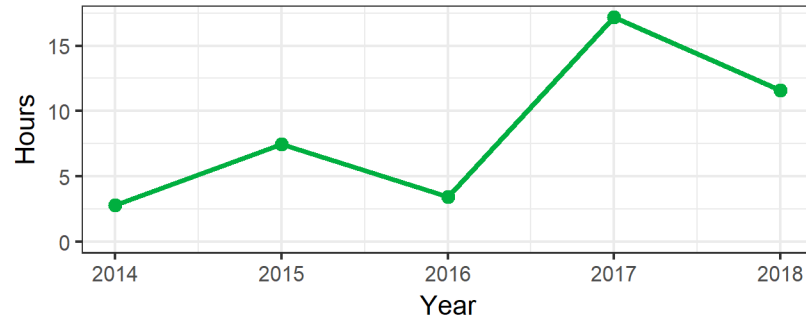


OYDM11

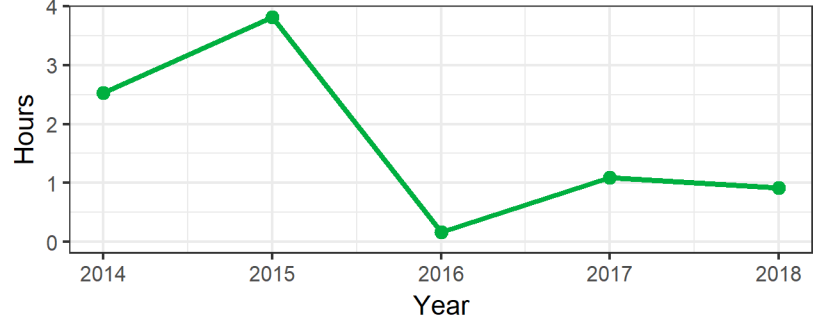




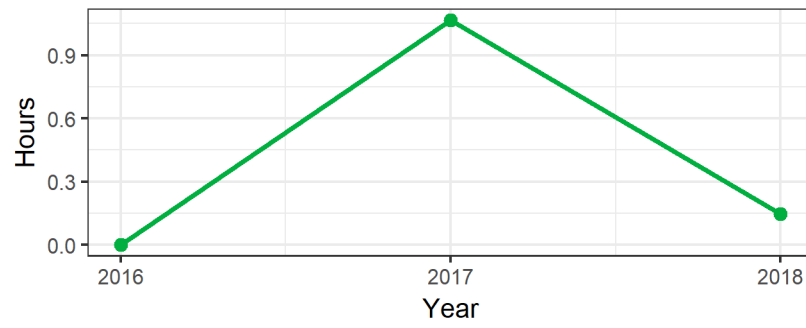
UNTY12



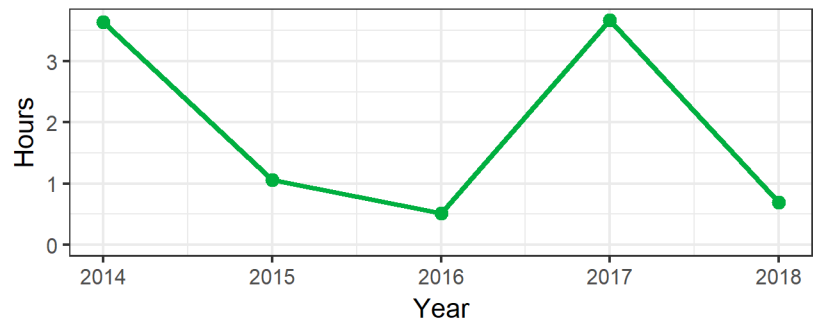
VALE11



VALE12



VALE13



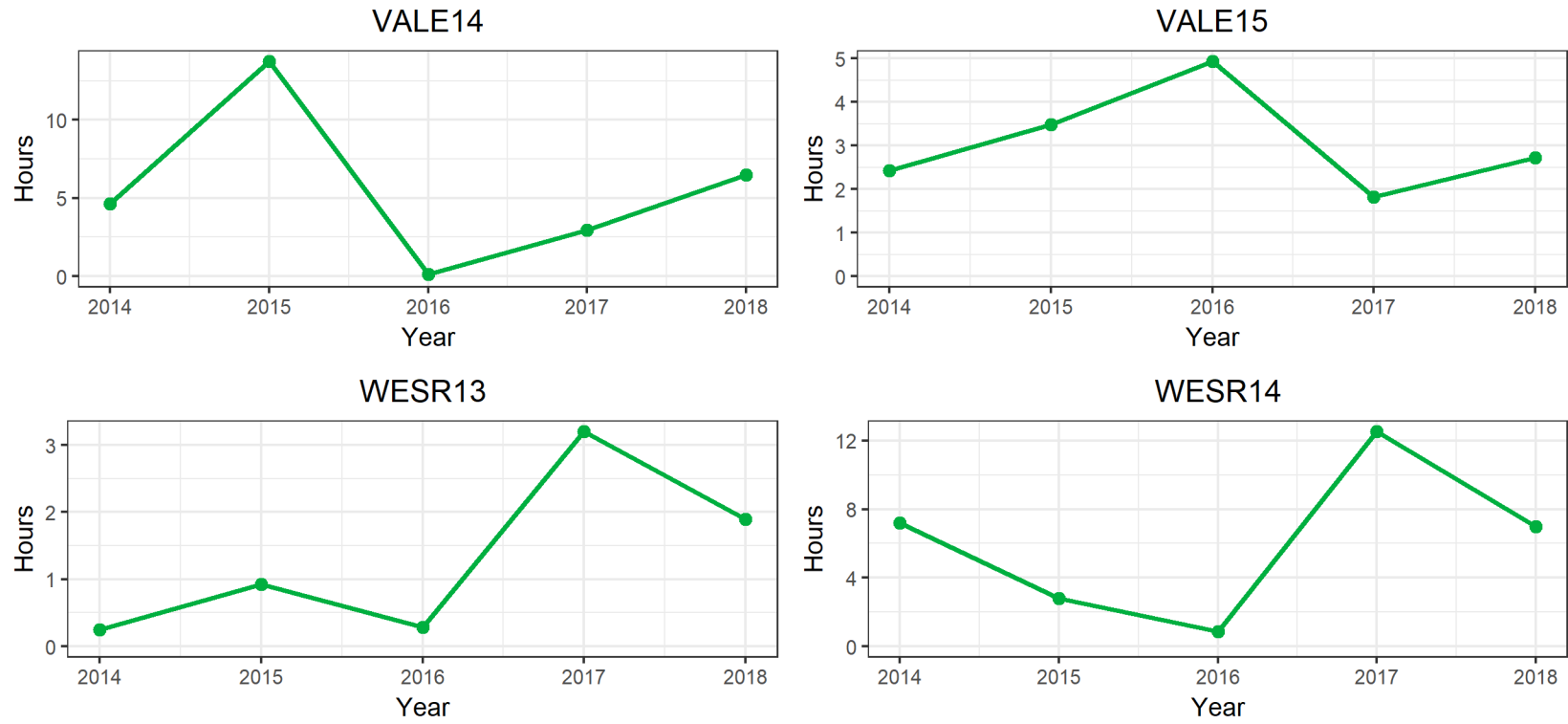
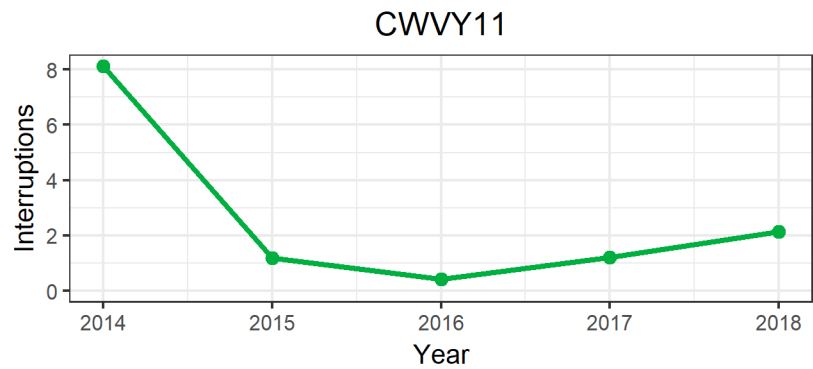
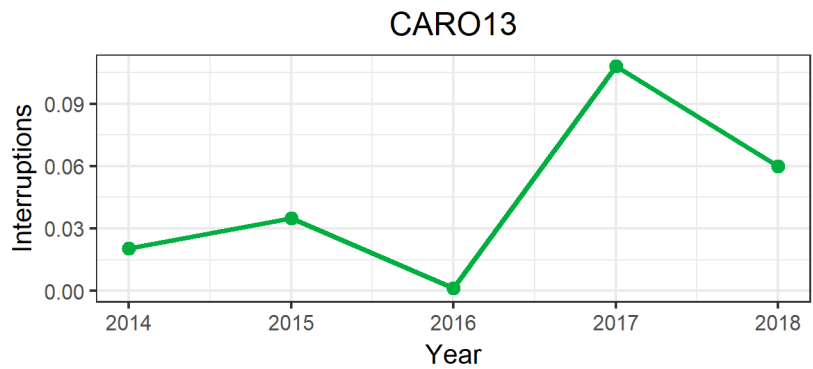
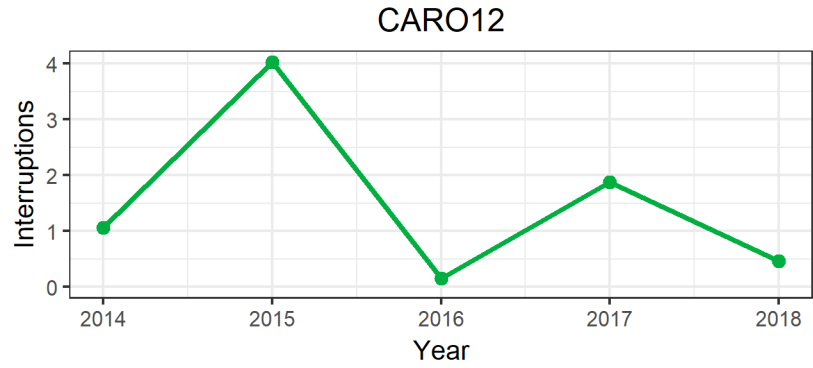
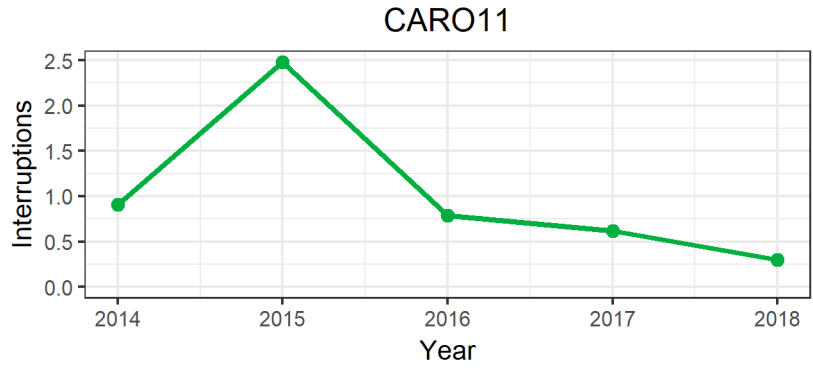
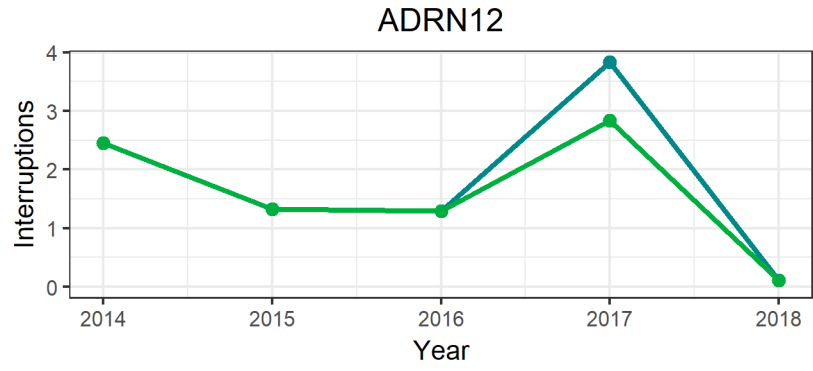
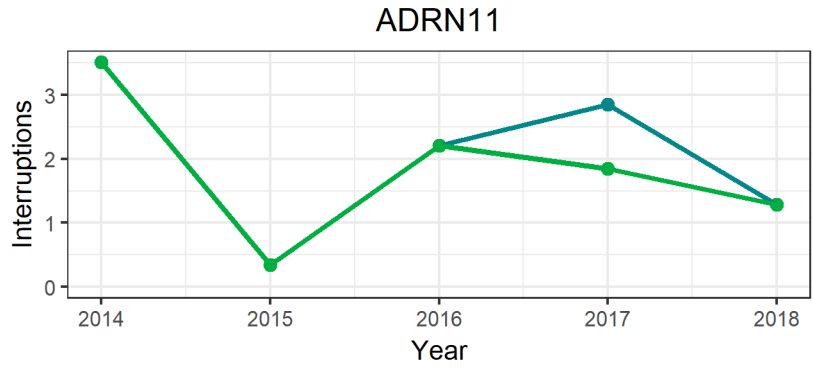


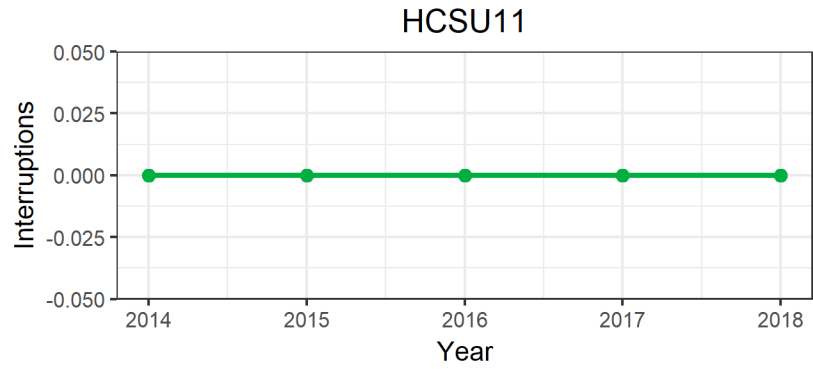
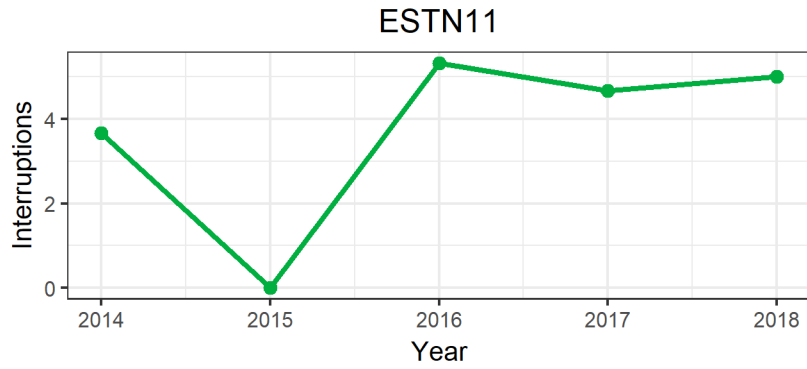
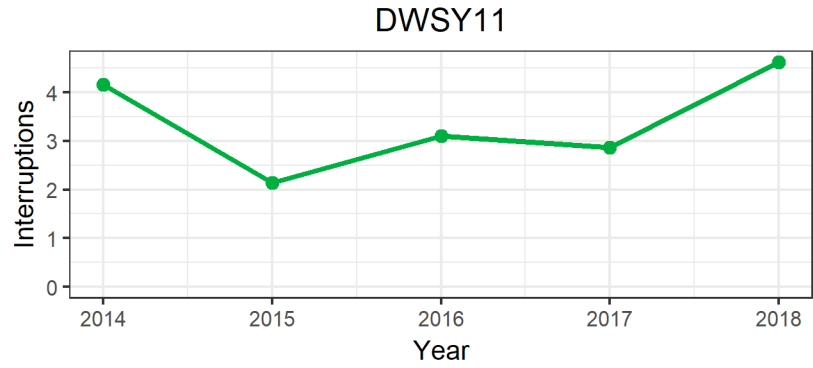
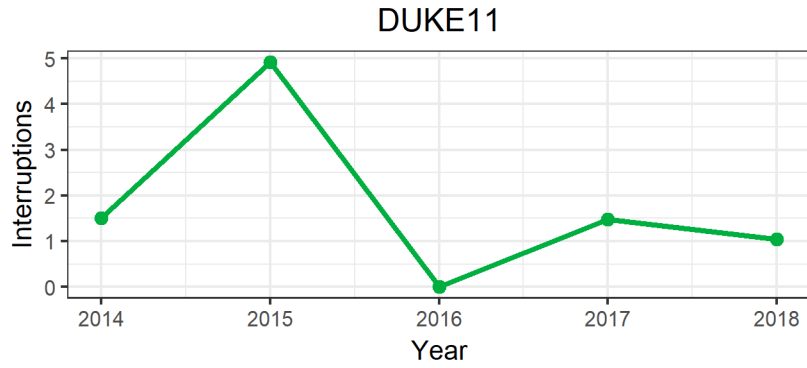
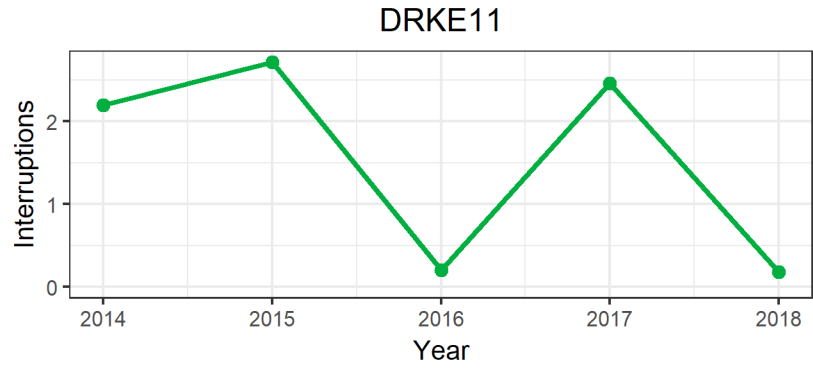
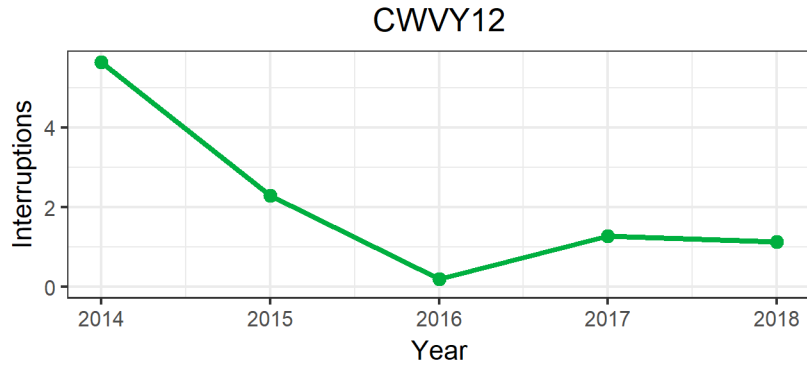
Figure 6 Five Years of Circuit SAIDI

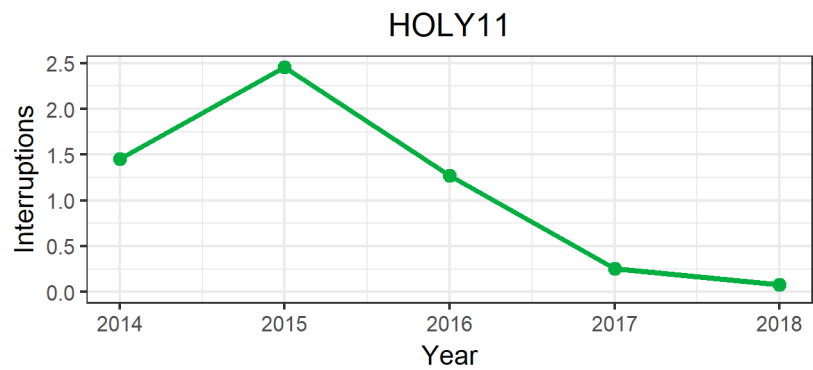
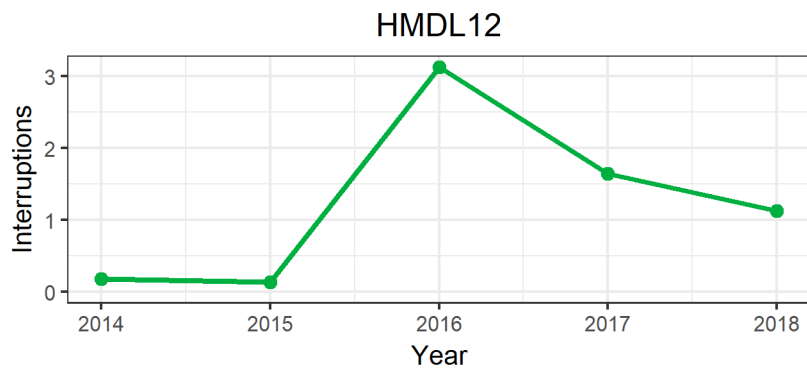
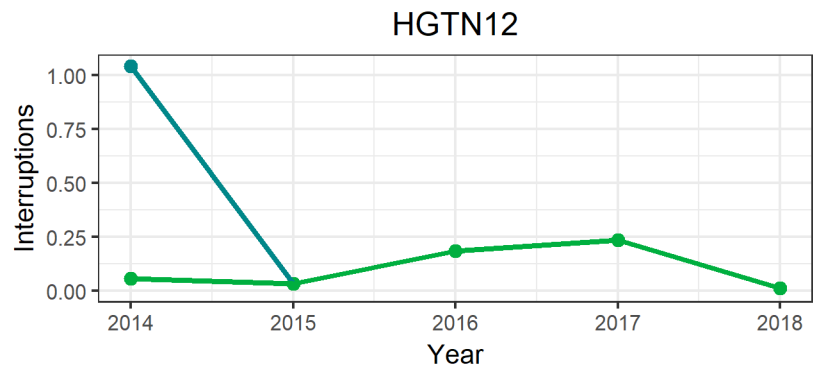
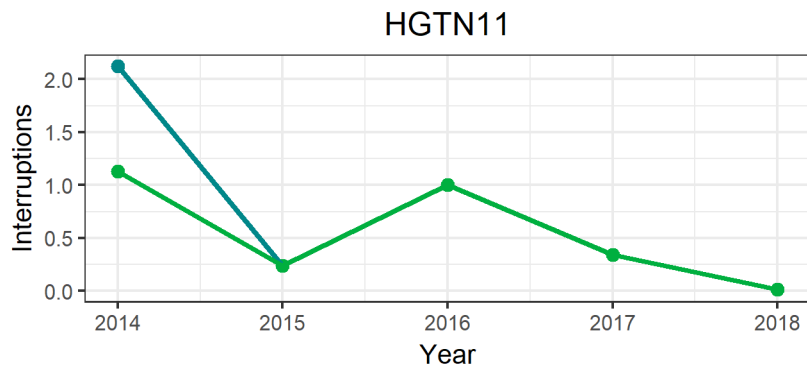
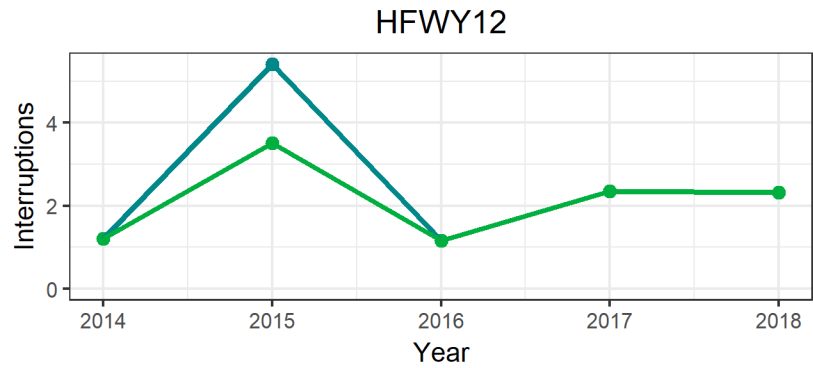
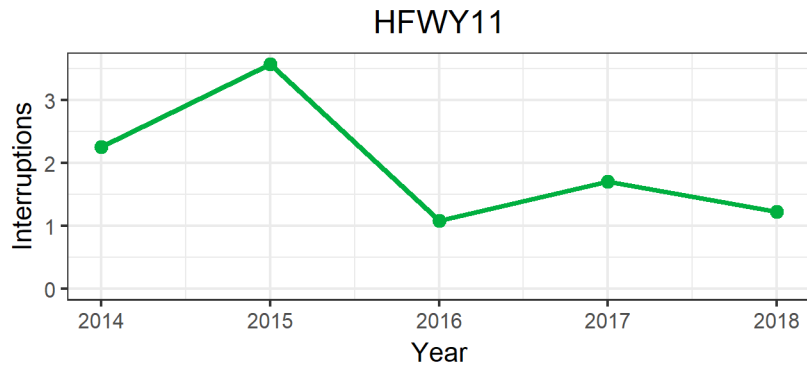
Five Years of Circuit SAIFI

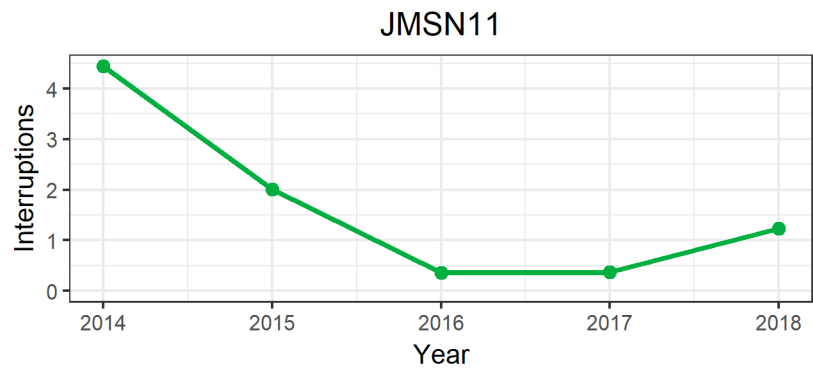
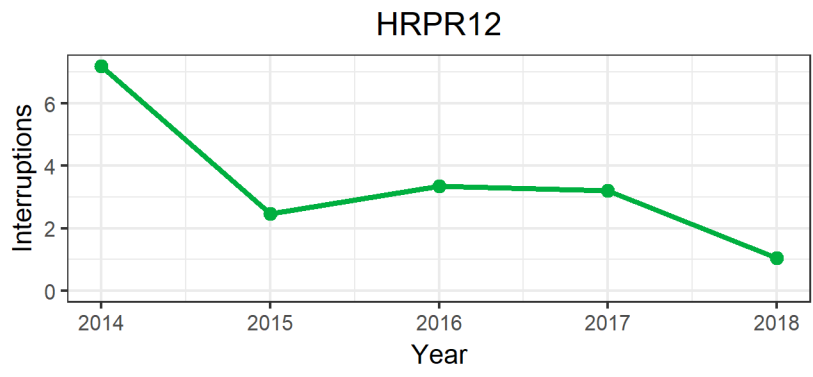
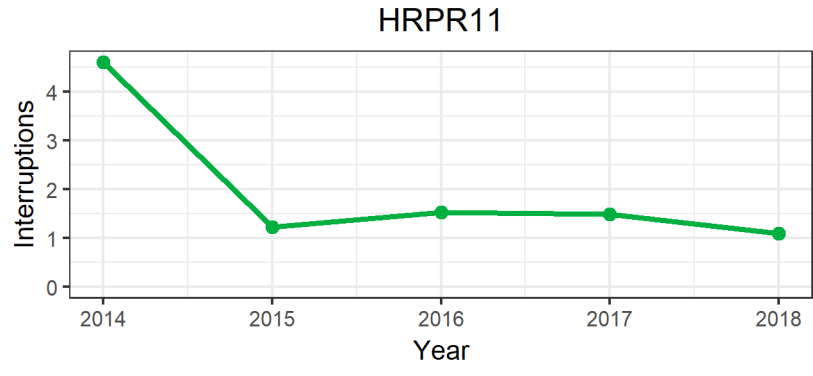
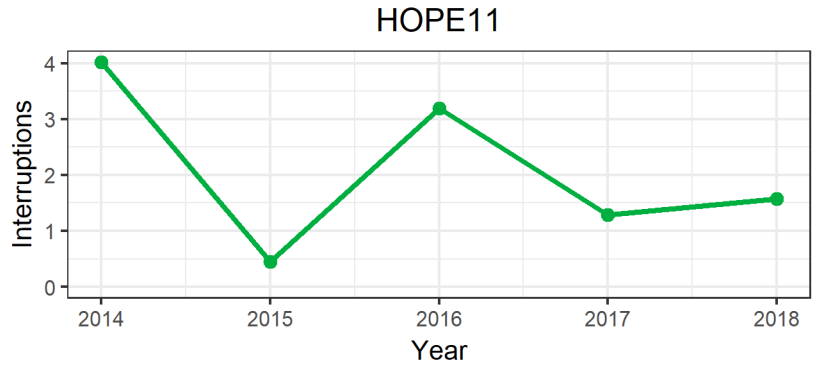
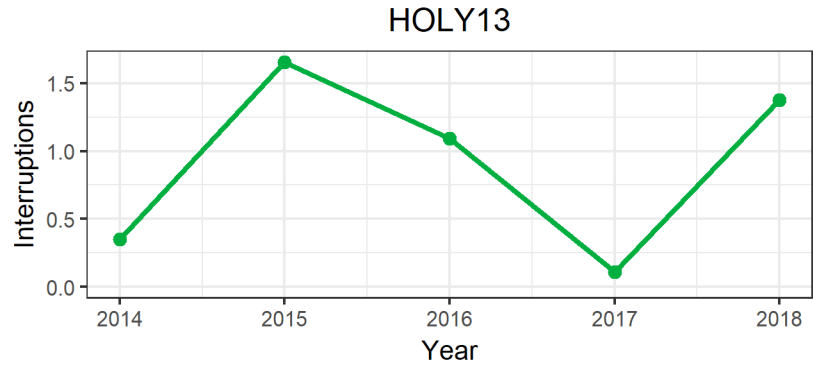
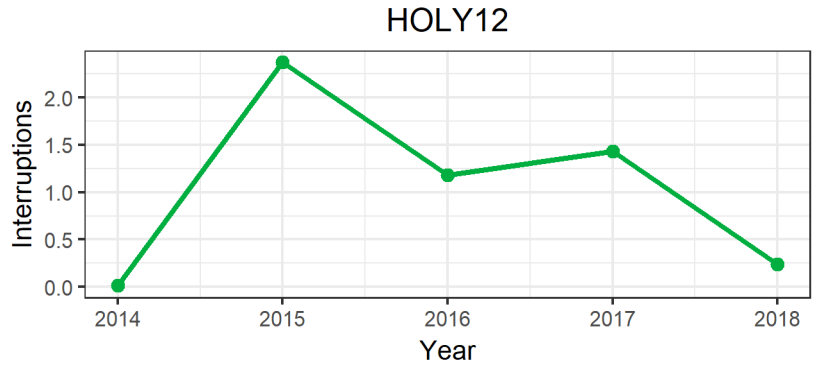
Circuit	2014	2015	2016	2017	2018	2018 MedEx
ADRN11	3.52	0.34	2.21	2.85	1.29	1.29
ADRN12	2.46	1.33	1.29	3.84	0.11	0.11
CARO11	0.91	2.48	0.79	0.62	0.30	0.30
CARO12	1.06	4.03	0.16	1.87	0.46	0.46
CARO13	0.02	0.04	0.00	0.11	0.06	0.06
CWVY11	8.13	1.18	0.42	1.20	2.14	2.14
CWVY12	5.65	2.29	0.20	1.27	1.13	1.13
DRKE11	2.19	2.72	0.20	2.46	0.18	0.18
DUKE11	1.50	4.93	0.00	1.48	1.04	1.04
DWSY11	4.16	2.13	3.10	2.87	4.63	4.63
ESTN11	3.67	0.00	5.33	4.67	5.00	5.00
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	2.26	3.58	1.08	1.71	1.23	1.23
HFVY12	1.21	5.42	1.17	2.36	2.32	2.32
HGTN11	2.13	0.24	1.00	0.34	0.01	0.01
HGTN12	1.04	0.03	0.19	0.24	0.01	0.01
HMDL12	0.18	0.13	3.13	1.64	1.13	1.13
HOLY11	1.45	2.46	1.27	0.26	0.08	0.08
HOLY12	0.01	2.38	1.18	1.43	0.24	0.24
HOLY13	0.35	1.66	1.09	0.11	1.37	1.37
HOPE11	4.02	0.45	3.19	1.28	1.57	1.57
HRPR11	4.61	1.22	1.53	1.49	1.10	1.10
HRPR12	7.20	2.46	3.34	3.21	1.04	1.04
JMSN11	4.45	2.01	0.36	0.37	1.23	1.23
JMSN12	5.35	2.16	0.33	1.16	1.07	1.07
JNTA11	4.80	2.30	3.33	1.00	2.03	2.03
JNTA12	4.67	2.13	3.96	1.23	2.24	2.24
JNVY11	3.20	16.77	3.25	2.26	1.11	1.11
JNVY12	1.98	21.36	2.00	2.26	1.16	1.16
JNVY31	3.73	12.96	6.09	3.66	3.01	3.01
LIME11	2.46	2.31	0.77	2.44	1.46	1.46
MRBT41	1.58	0.13	0.50	1.22	2.15	2.15
MRBT42	1.14	0.11	0.22	1.00	3.00	3.00
NYSA11	2.03	2.75	1.36	0.19	0.18	0.18
NYSA12	1.26	0.68	4.42	3.21	1.33	1.33
NYSA13	2.21	0.15	2.36	0.16	0.15	0.15
NYSA14	2.16	0.08	1.47	0.05	0.14	0.14
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	0.08	0.10	0.24	0.74	0.29	0.29
OIDA12	2.00	2.00	1.00	2.00	0.00	0.00
ONTO14	0.00	0.03	1.00	1.09	0.00	0.00
ONTO18	0.04	0.17	0.12	0.06	1.12	1.12
ONTO19	0.07	1.60	0.14	0.29	1.22	1.22
ONTO20	0.34	0.19	1.22	0.17	0.32	0.32
ONTO23	0.00	0.15	0.13	2.17	0.21	0.21
ONTO24	1.27	2.61	0.44	1.69	2.85	2.85
ONTO25	0.02	0.16	0.19	0.13	0.17	0.17
OYDM11	0.00	0.00	0.00	0.93	0.13	0.13
PNCK11	0.63	3.63	2.91	0.96	0.25	0.25
PNCK12	0.00	4.00	1.00	1.00	0.00	0.00
PRMA12	6.50	2.00	8.00	3.00	2.33	2.33
PRMA42	2.42	3.37	1.66	4.60	2.64	2.64
RKVL11	3.96	9.25	2.52	2.25	1.00	1.00
UNTY11	3.22	1.39	1.17	6.21	2.15	2.15
UNTY12	2.22	2.07	0.90	6.81	2.06	2.06
VALE11	2.45	1.16	0.10	1.59	0.74	0.74
VALE12	0.00	0.00	0.00	0.50	0.14	0.14
VALE13	2.86	0.83	0.23	1.18	0.33	0.33
VALE14	3.13	5.62	0.05	0.91	1.59	1.59
VALE15	2.24	1.33	2.84	1.37	1.69	1.69
WESR13	0.14	0.29	0.19	2.34	1.08	1.08
WESR14	2.61	2.61	0.43	3.23	3.73	3.73

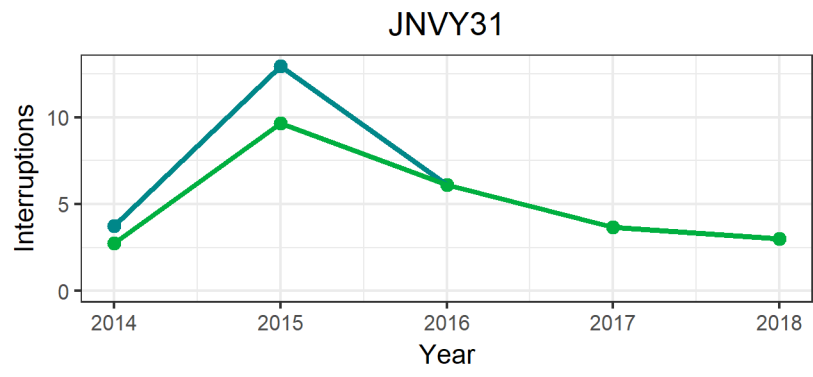
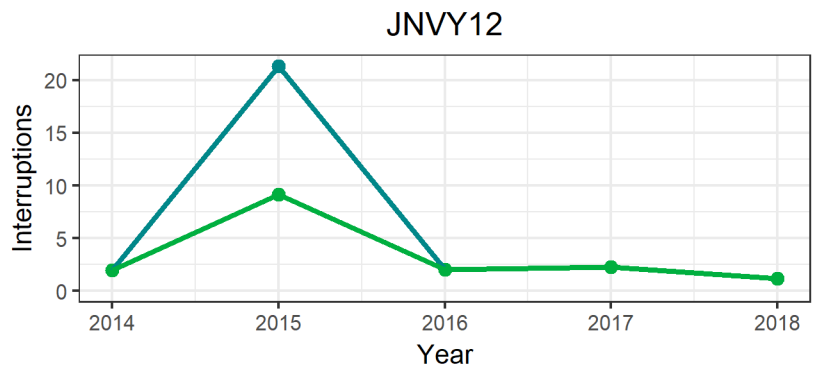
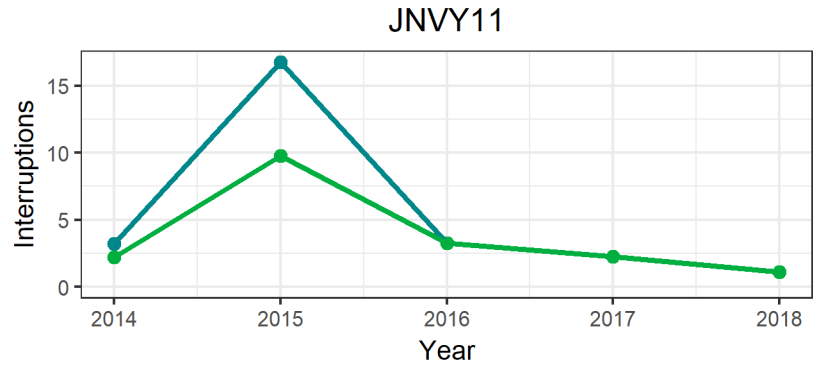
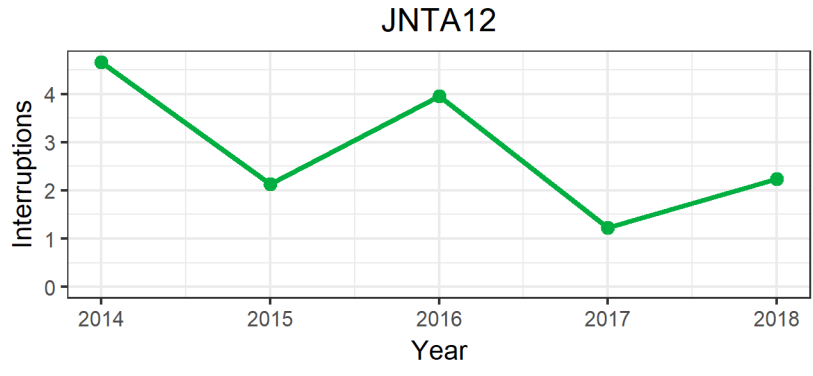
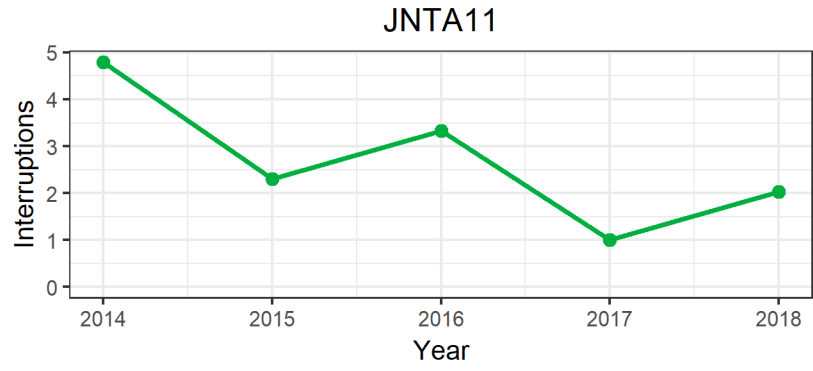
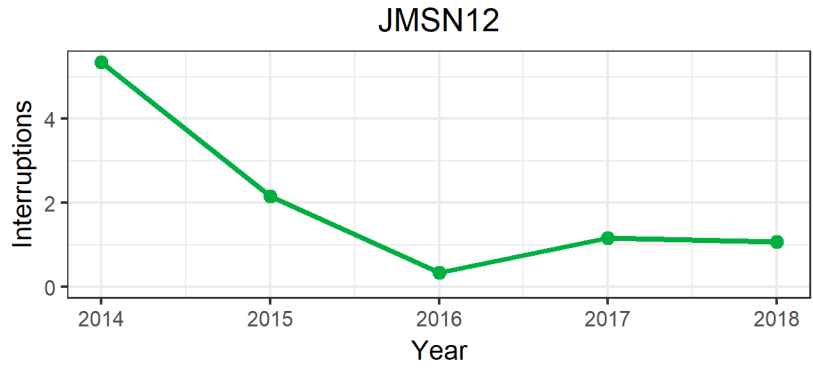
Table 7 Five Years of Circuit SAIFI

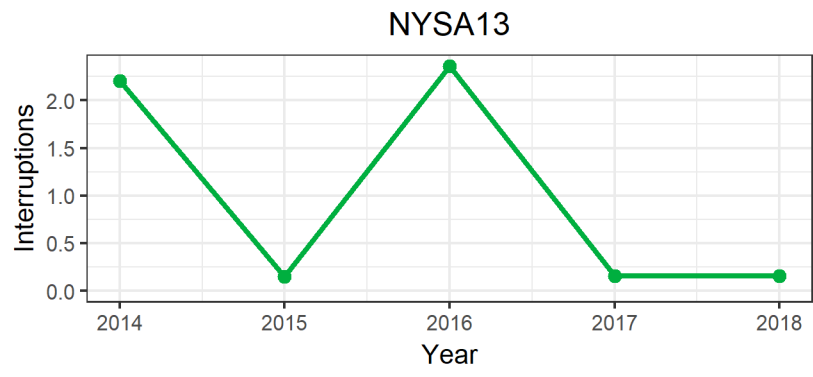
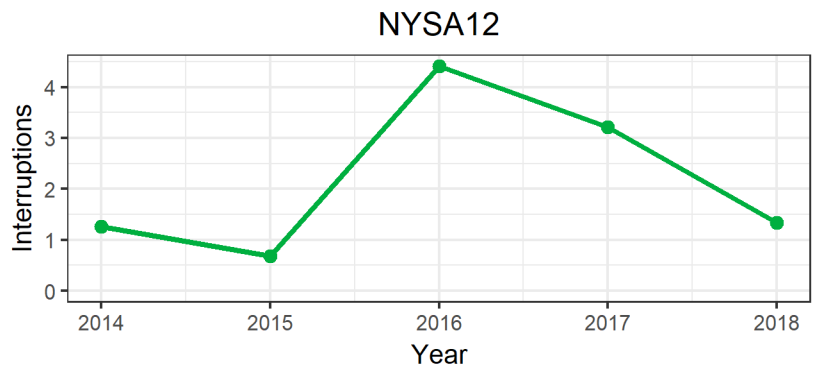
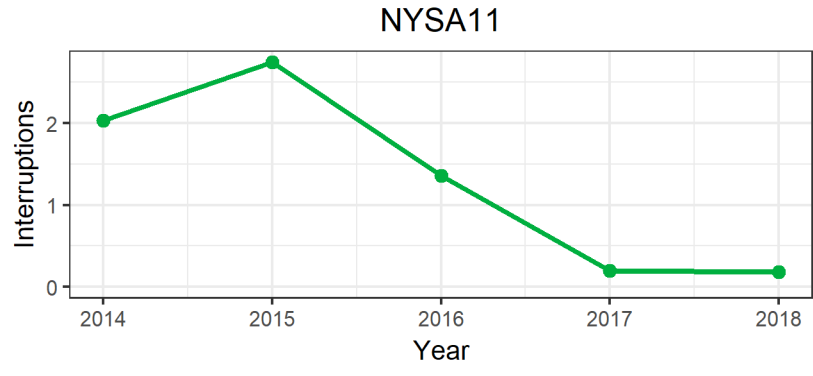
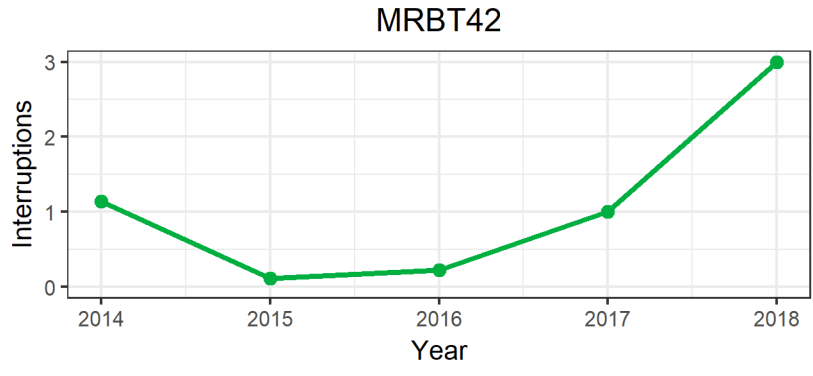
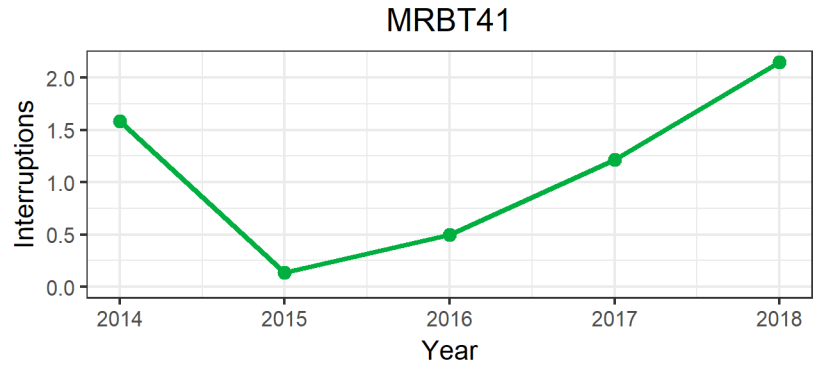
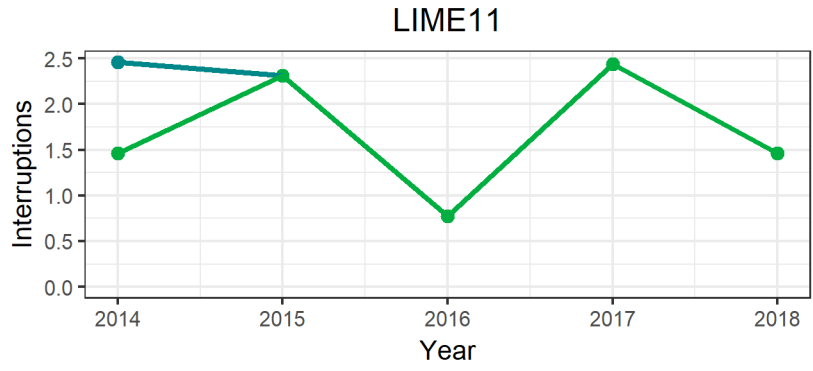


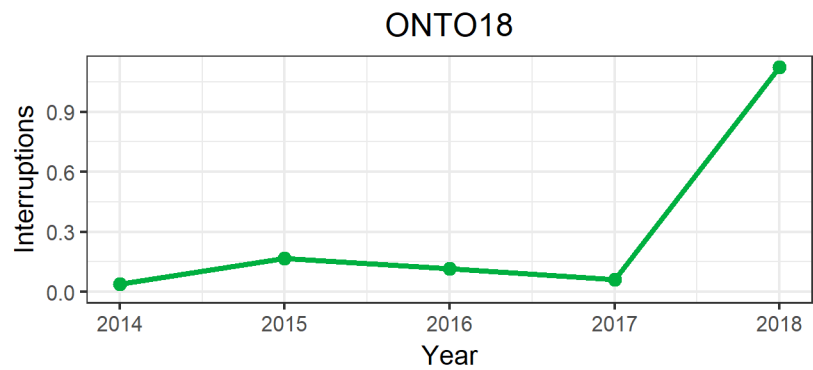
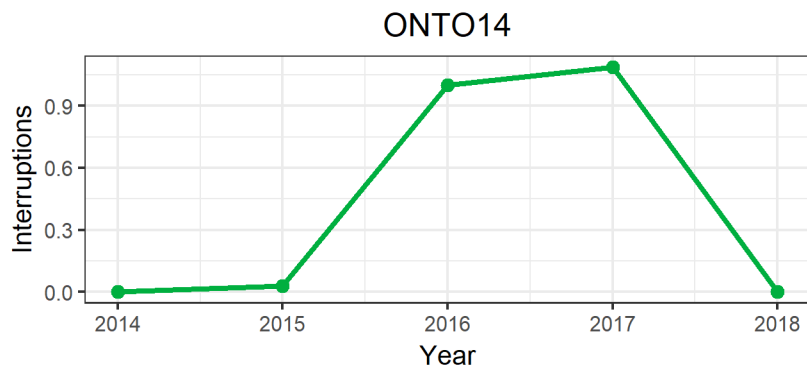
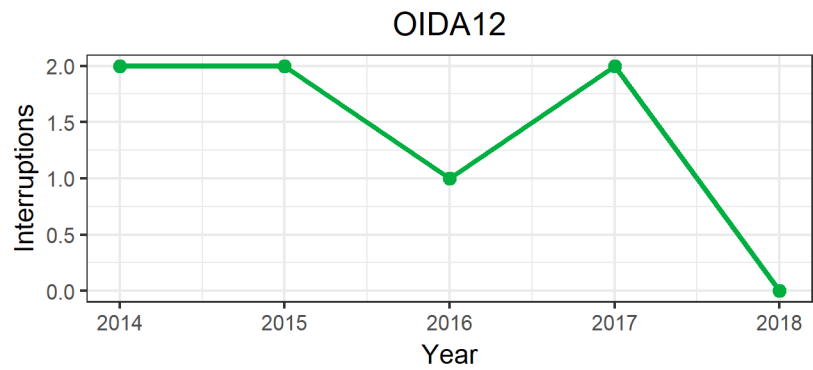
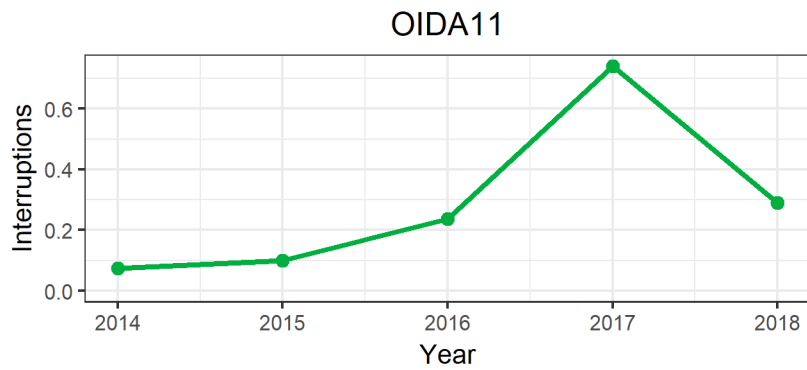
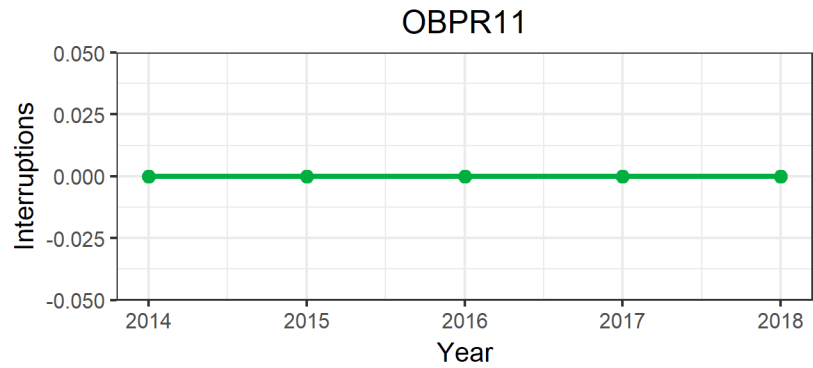
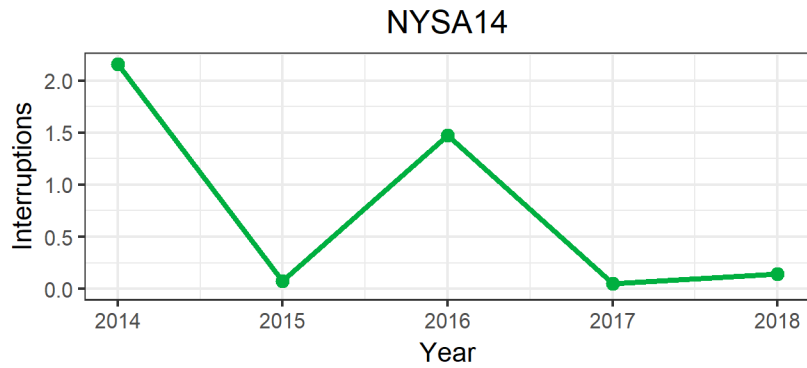


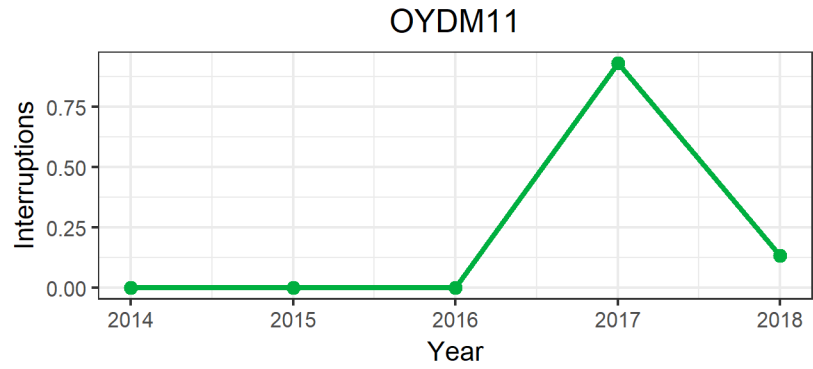
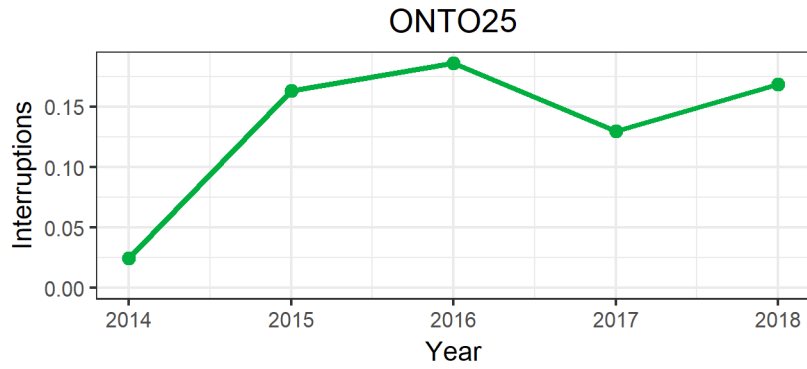
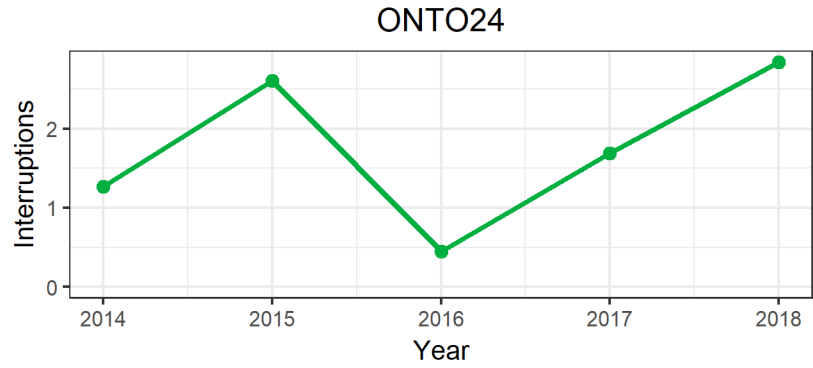
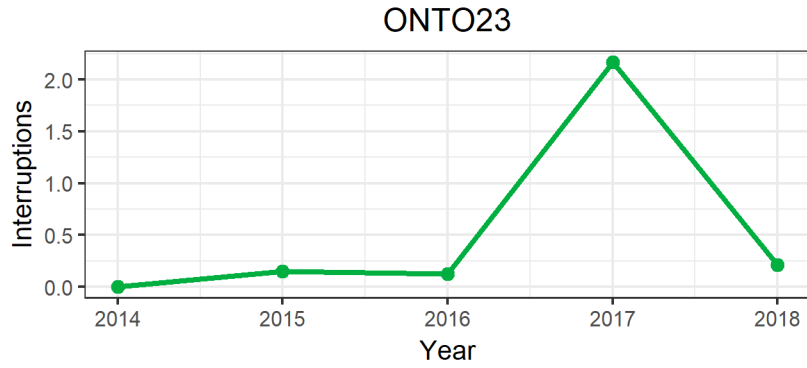
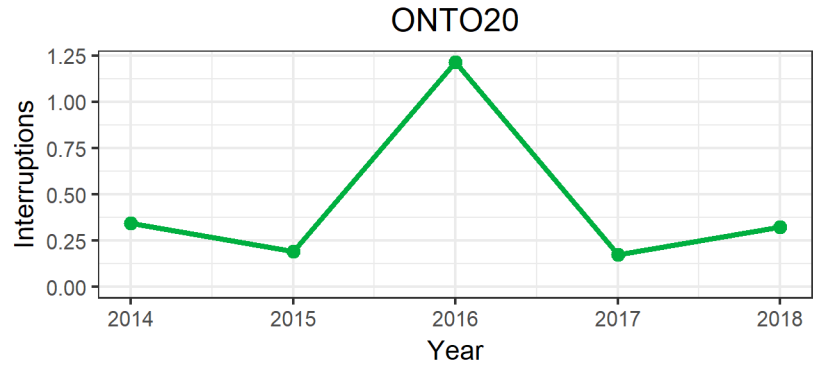
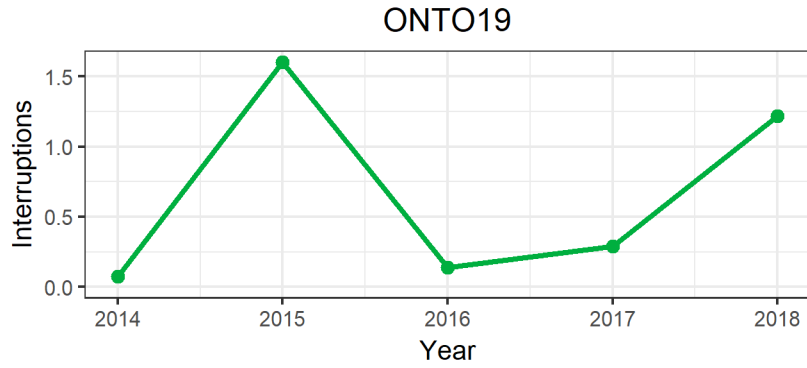


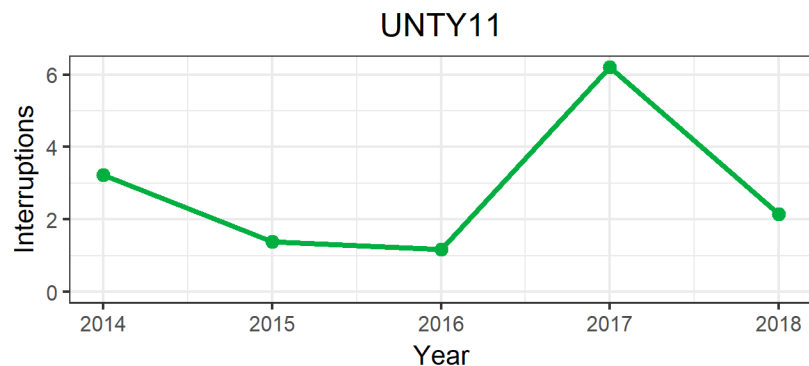
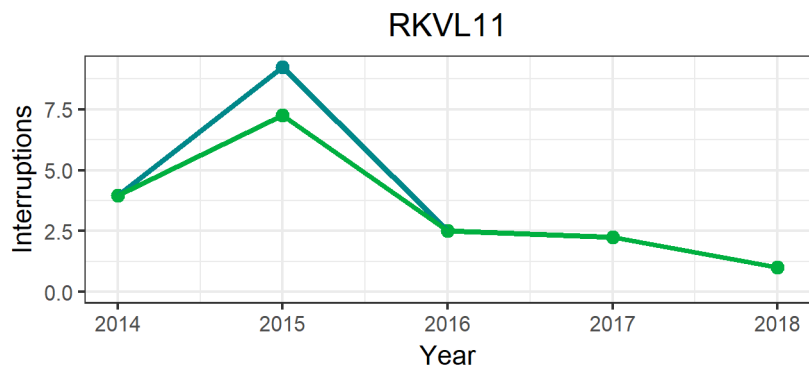
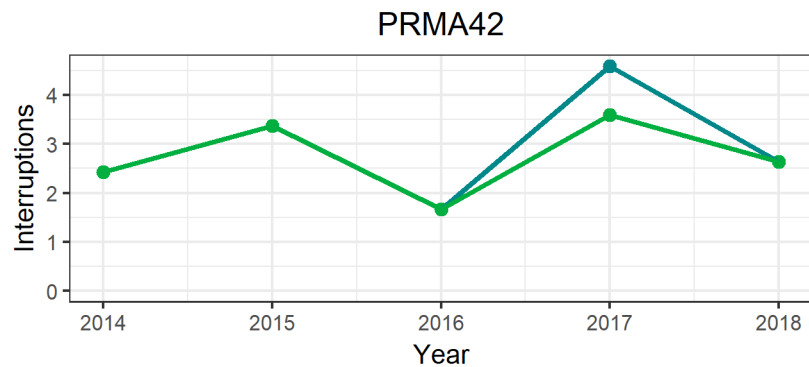
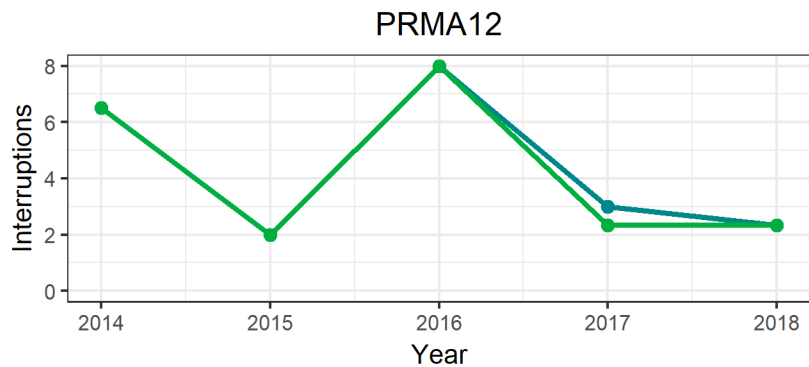
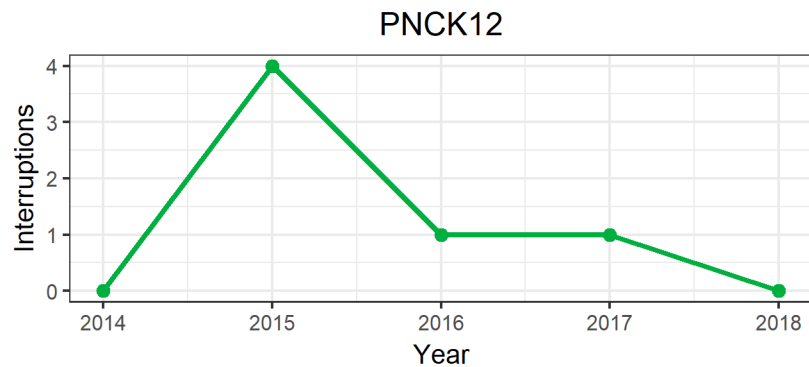
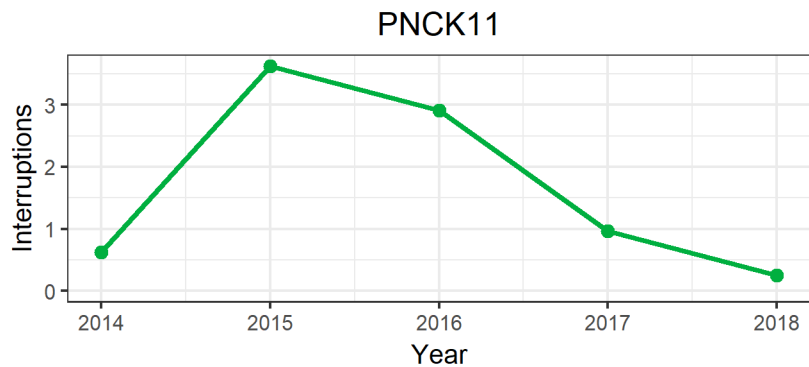




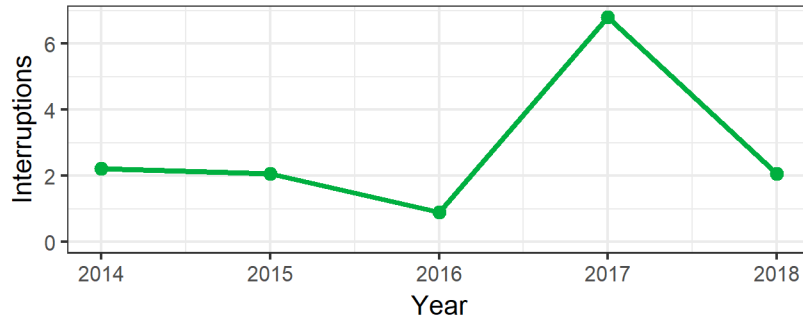




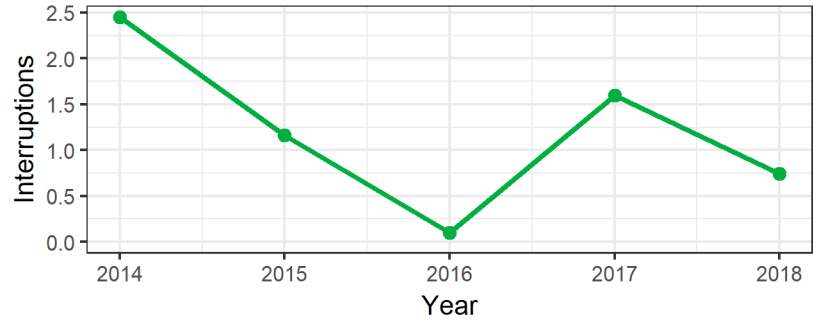




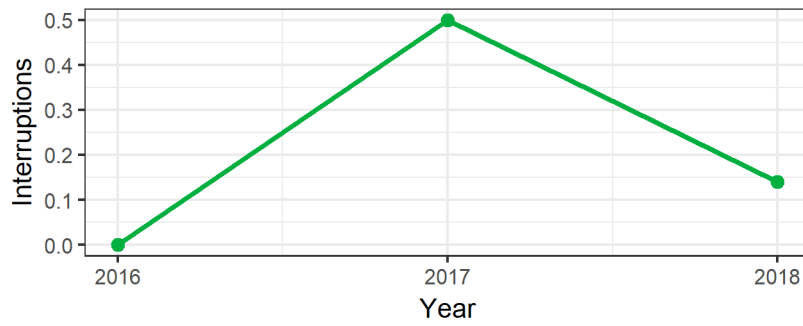
UNTY12



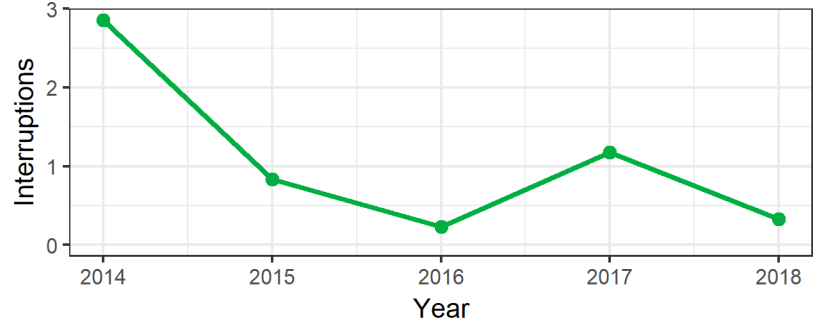
VALE11



VALE12



VALE13



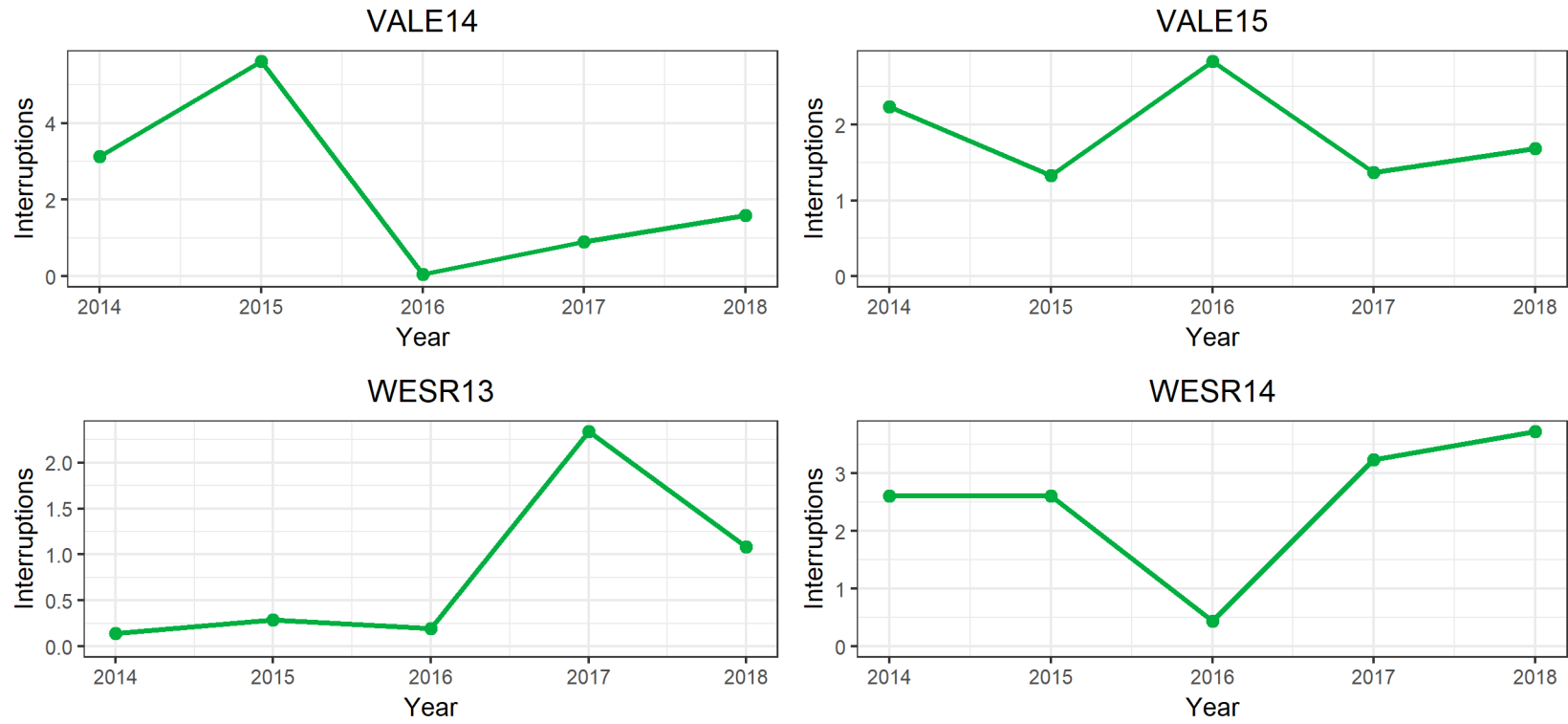
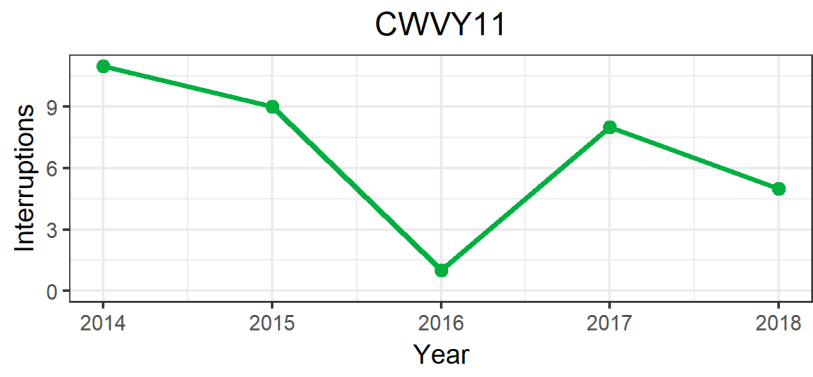
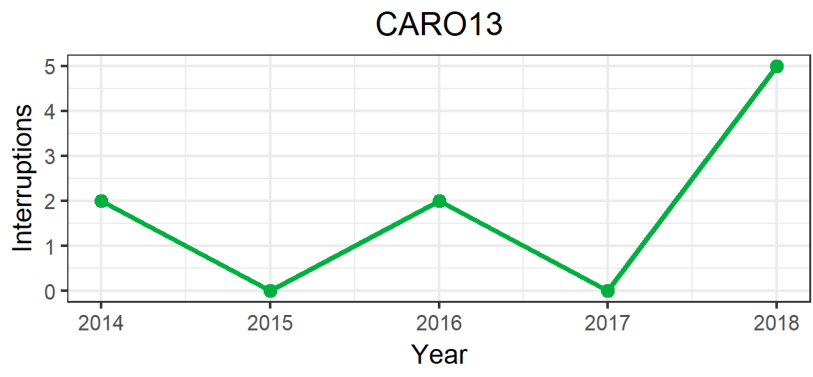
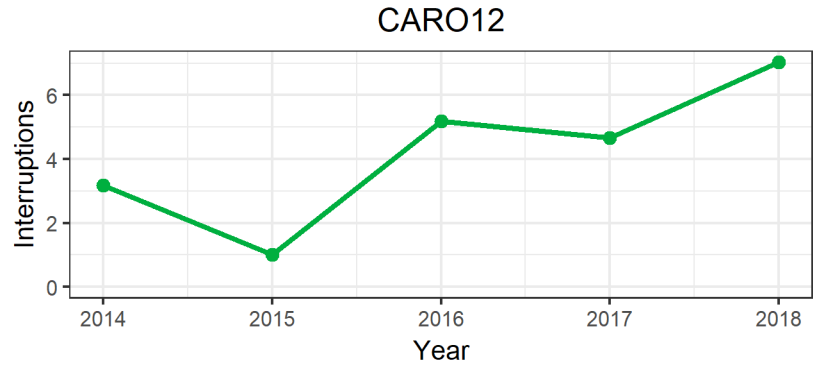
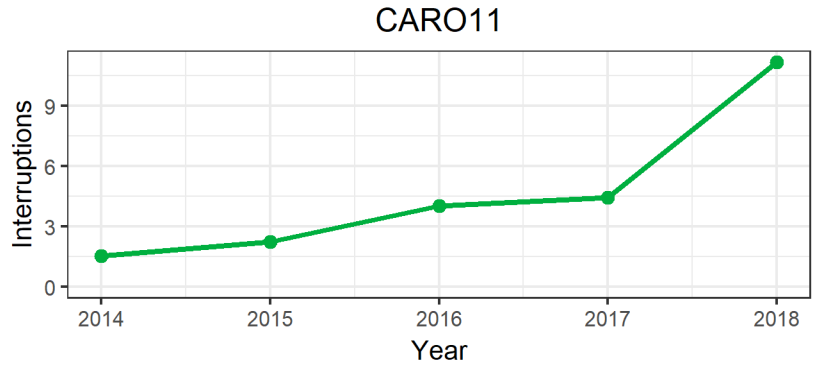
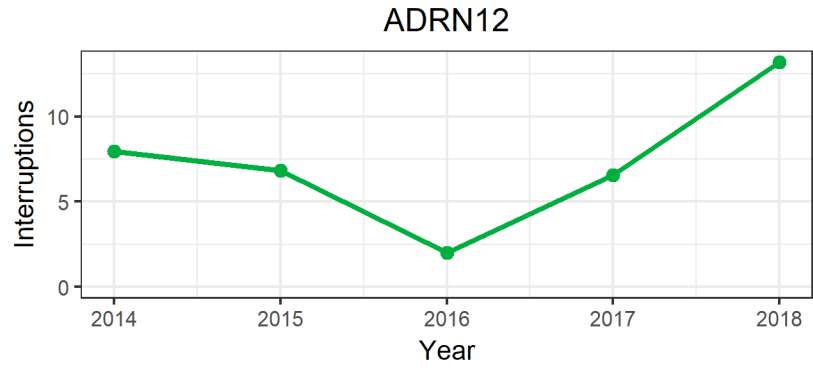
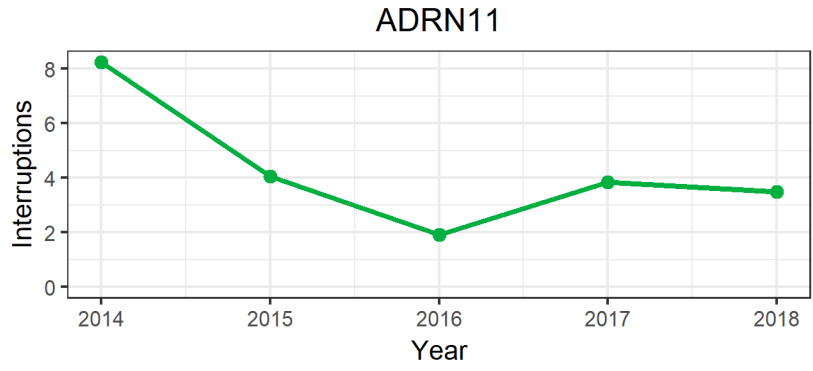


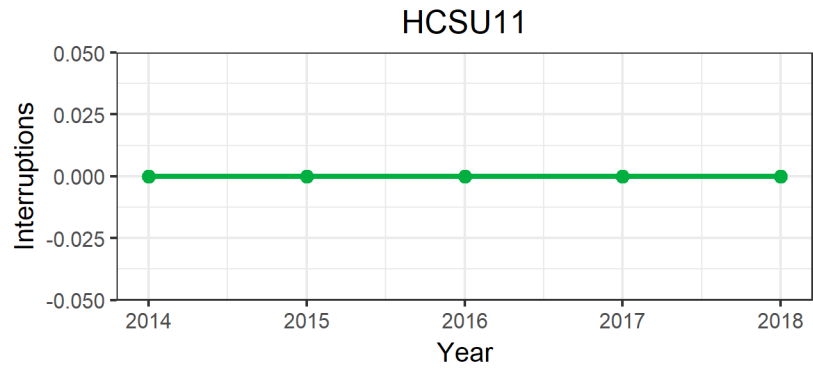
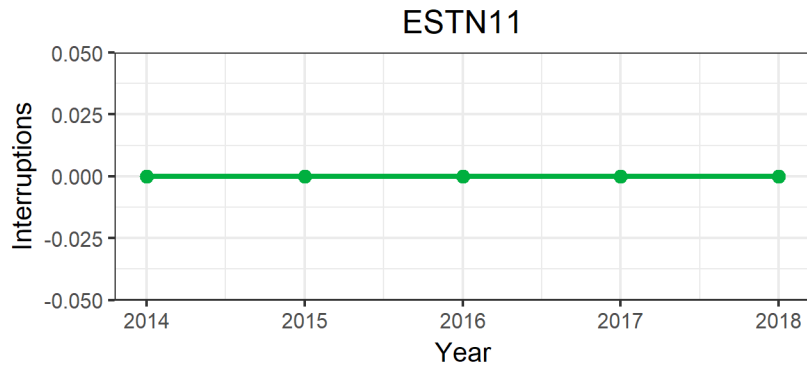
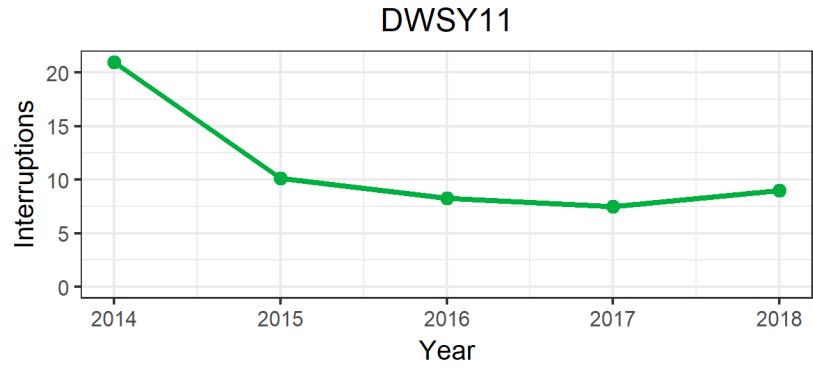
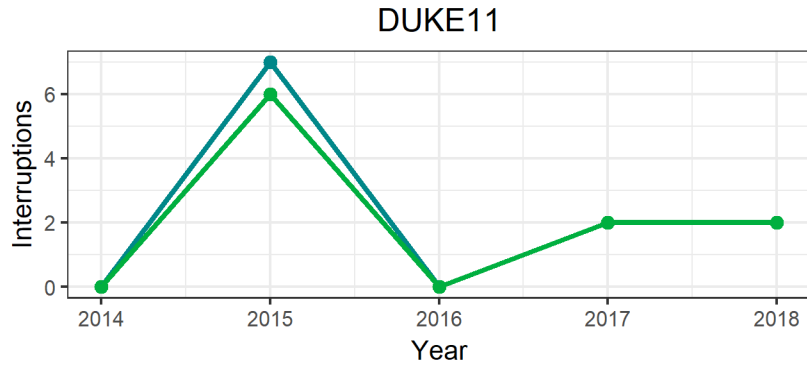
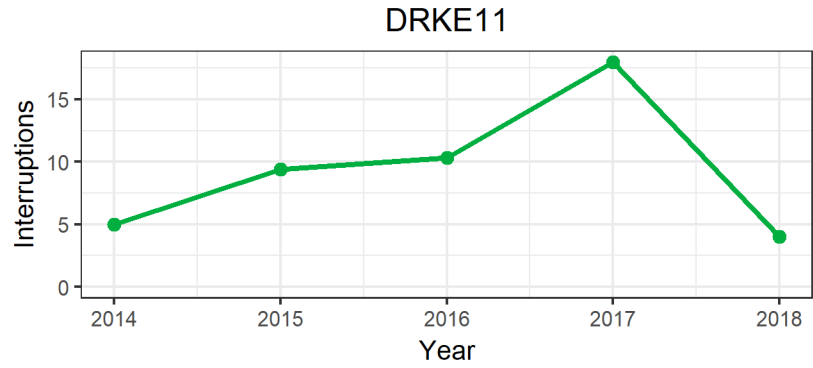
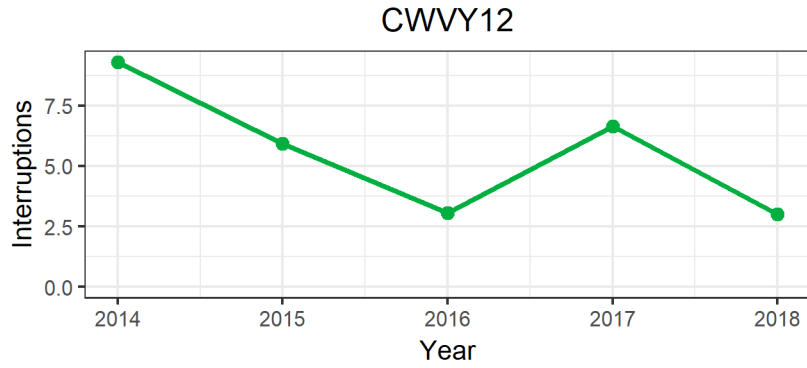
Figure 7 Five Years of Circuit SAIFI

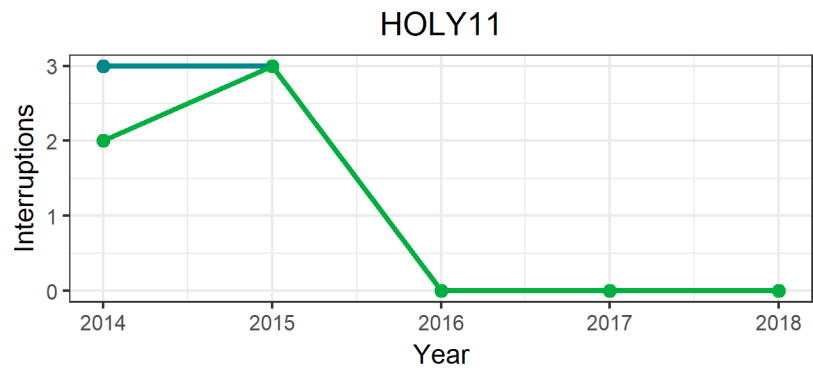
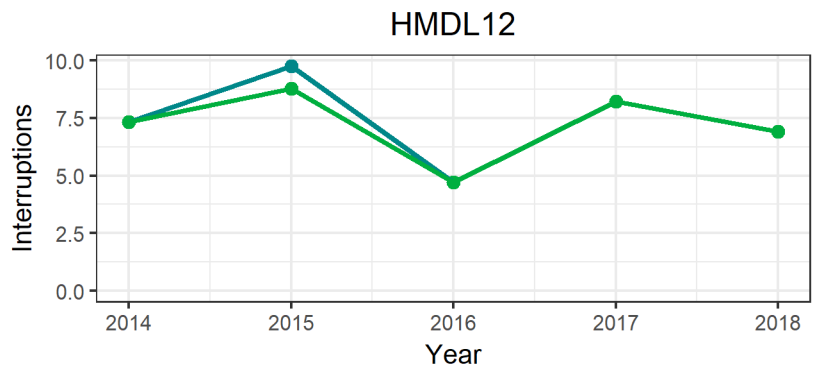
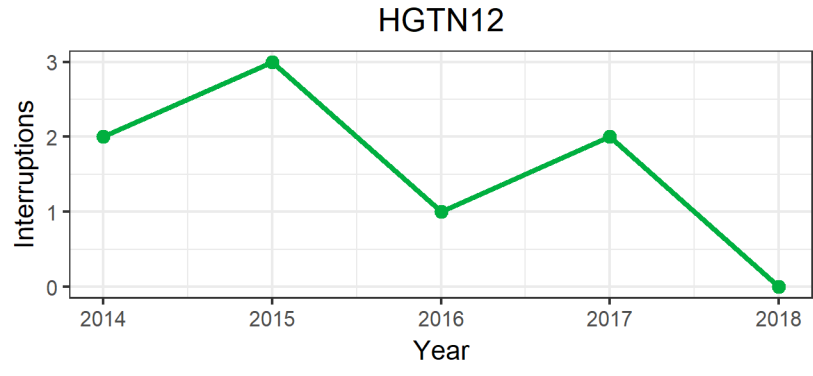
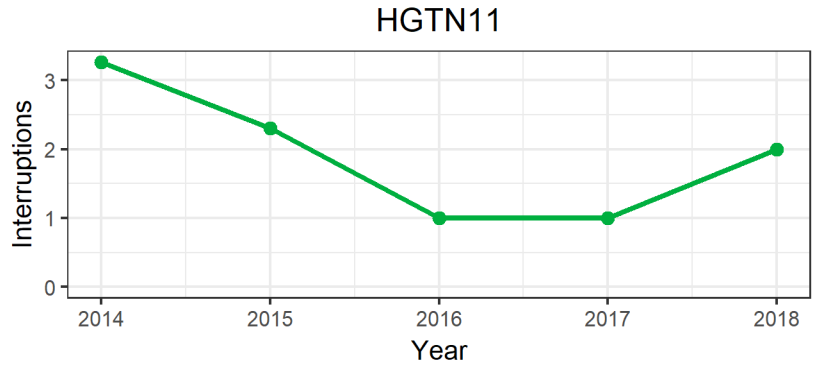
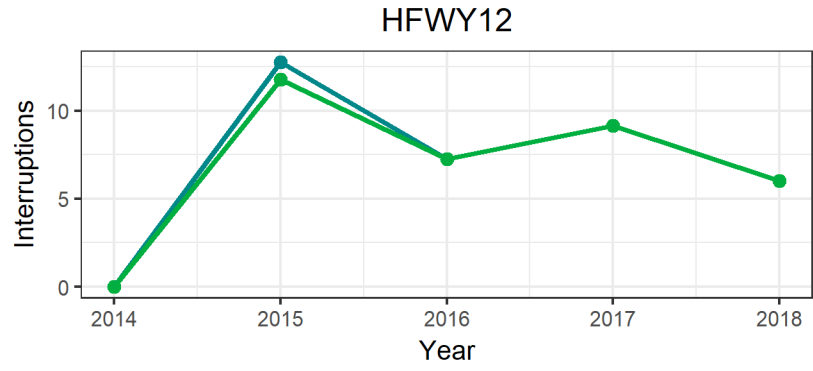
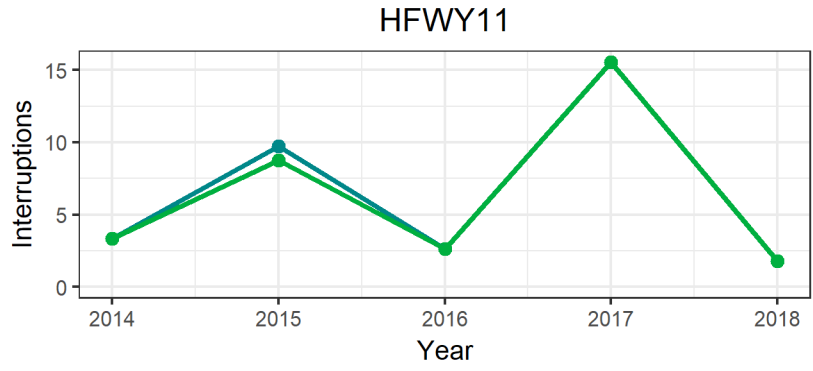
Five Years of Circuit MAIFI_E

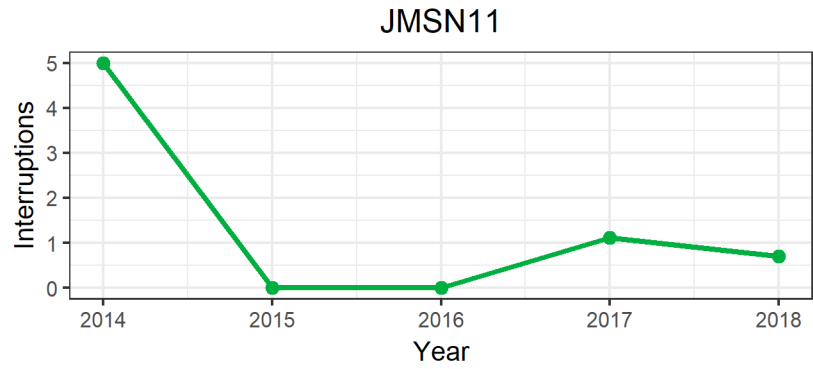
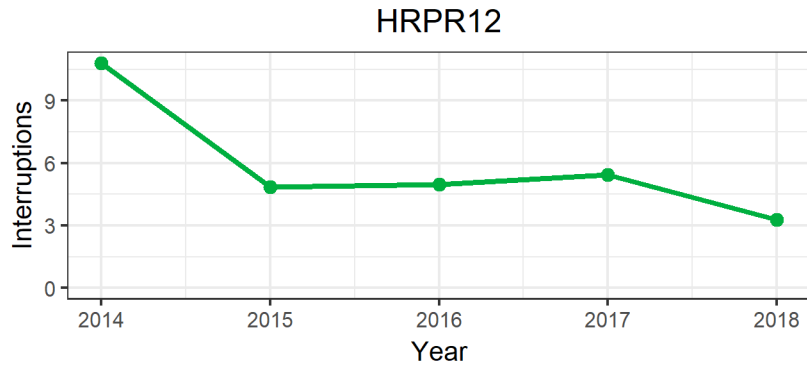
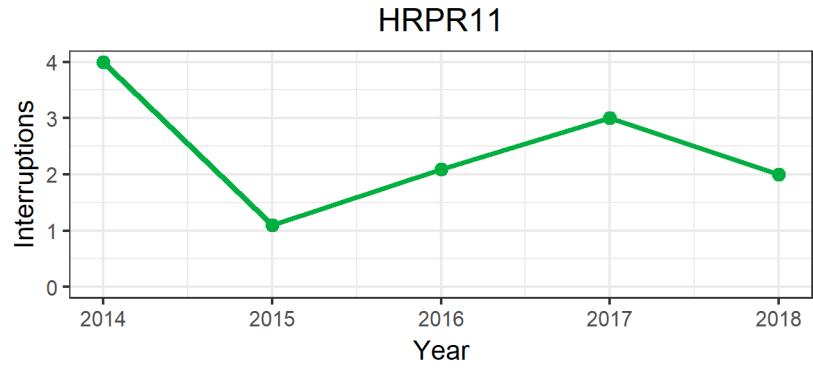
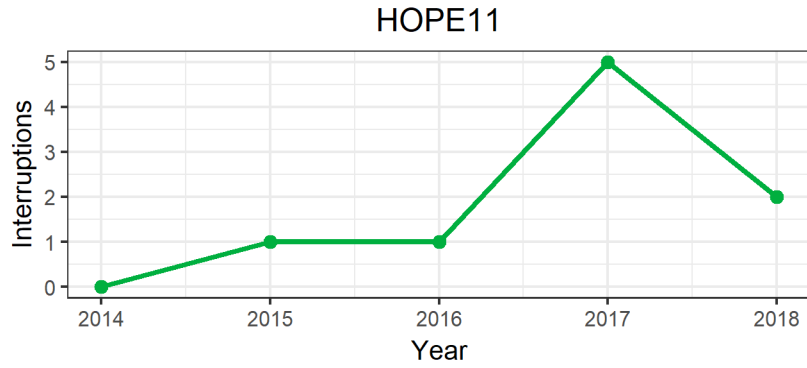
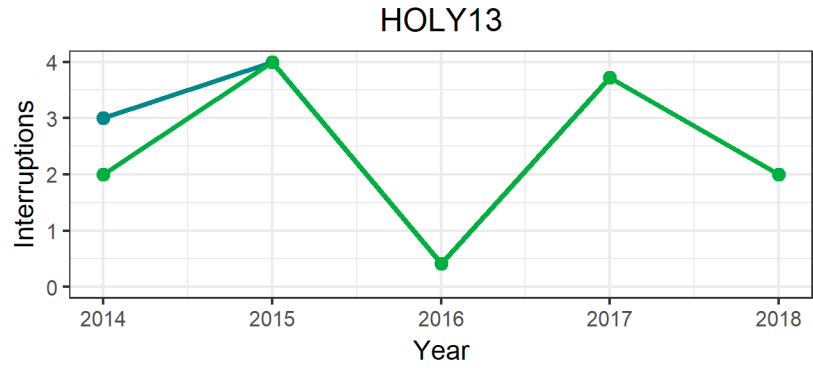
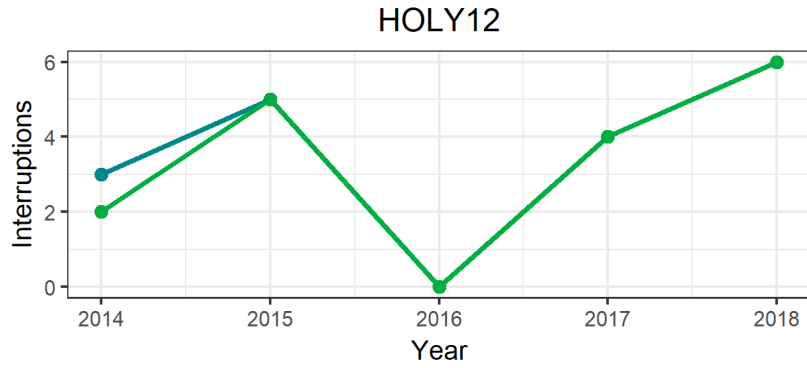
Circuit	2014	2015	2016	2017	2018	2018 MedEx
ADRN11	8.25	4.05	1.91	3.84	3.50	3.50
ADRN12	7.94	6.84	2.00	6.55	13.20	13.20
CARO11	1.53	2.23	4.01	4.42	11.18	11.18
CARO12	3.17	1.00	5.19	4.66	7.04	7.04
CARO13	2.00	0.00	2.00	0.00	5.00	5.00
CWVY11	11.00	9.00	1.00	8.00	5.00	5.00
CWVY12	9.31	5.94	3.06	6.65	3.00	3.00
DRKE11	5.00	9.42	10.33	18.00	4.00	4.00
DUKE11	0.00	7.00	0.00	2.00	2.00	2.00
DWSY11	21.00	10.13	8.27	7.47	9.00	9.00
ESTN11	0.00	0.00	0.00	0.00	0.00	0.00
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	3.35	9.74	2.64	15.57	1.79	1.79
HFVY12	0.00	12.77	7.25	9.15	6.00	6.00
HGTN11	3.27	2.31	1.00	1.00	2.00	2.00
HGTN12	2.00	3.00	1.00	2.00	0.00	0.00
HMDL12	7.33	9.76	4.72	8.23	6.92	6.92
HOLY11	3.00	3.00	0.00	0.00	0.00	0.00
HOLY12	3.00	5.00	0.00	4.00	6.00	6.00
HOLY13	3.00	4.00	0.42	3.72	2.00	2.00
HOPE11	0.00	1.00	1.00	5.00	2.00	2.00
HRPR11	4.00	1.10	2.09	3.00	2.00	2.00
HRPR12	10.82	4.86	4.96	5.42	3.27	3.27
JMSN11	5.00	0.00	0.00	1.11	0.70	0.70
JMSN12	4.00	6.00	3.00	9.67	7.00	7.00
JNTA11	23.00	9.00	9.00	12.00	9.00	9.00
JNTA12	24.73	9.76	9.25	14.13	9.63	9.63
JNVY11	8.00	12.70	3.66	6.32	6.00	6.00
JNVY12	8.00	7.00	4.00	5.00	2.00	2.00
JNVY31	12.75	7.81	9.28	10.12	7.24	7.24
LIME11	2.32	3.45	1.00	2.19	2.00	2.00
MRBT41	0.00	1.00	0.00	1.00	1.00	1.00
MRBT42	4.00	0.00	0.00	0.00	1.00	1.00
NYSA11	2.00	1.00	1.00	0.00	2.00	2.00
NYSA12	1.06	1.48	5.42	7.15	1.95	1.95
NYSA13	0.00	0.00	0.00	1.26	1.09	1.09
NYSA14	1.00	0.00	1.00	1.35	0.00	0.00
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	0.00	2.94	4.23	2.00	0.00	0.00
OIDA12	0.00	0.00	0.00	0.00	0.00	0.00
ONTO14	0.00	0.00	1.00	1.00	1.00	1.00
ONTO18	3.00	3.00	0.00	2.00	3.00	3.00
ONTO19	1.66	1.50	1.36	0.00	1.72	1.72
ONTO20	2.00	0.00	0.00	0.00	0.00	0.00
ONTO23	0.00	1.00	2.00	7.00	0.00	0.00
ONTO24	0.00	1.32	0.94	3.28	0.00	0.00
ONTO25	2.00	1.00	0.00	3.00	0.00	0.00
OYDM11	0.00	0.00	0.00	0.00	0.00	0.00
PNCK11	0.00	12.17	3.00	4.00	4.00	4.00
PNCK12	0.00	0.00	0.00	0.00	0.00	0.00
PRMA12	11.00	2.00	3.00	5.00	1.00	1.00
PRMA42	10.00	6.32	4.76	12.23	9.74	9.74
RKVL11	10.00	6.00	6.00	6.00	5.00	5.00
UNTY11	7.00	6.00	1.00	15.00	8.00	8.00
UNTY12	0.00	6.73	1.22	14.85	0.00	0.00
VALE11	0.00	1.00	4.17	4.55	2.86	2.86
VALE12	0.00	0.00	0.00	0.00	0.00	0.00
VALE13	1.09	1.88	4.90	3.73	0.00	0.00
VALE14	0.00	12.62	1.07	2.61	2.00	2.00
VALE15	0.00	2.37	4.51	2.76	2.25	2.25
WESR13	2.44	0.84	0.00	0.27	0.74	0.74
WESR14	0.00	0.00	0.00	2.90	6.00	6.00

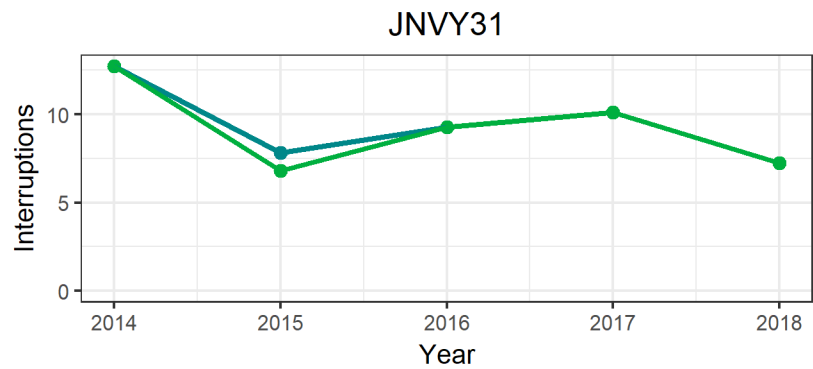
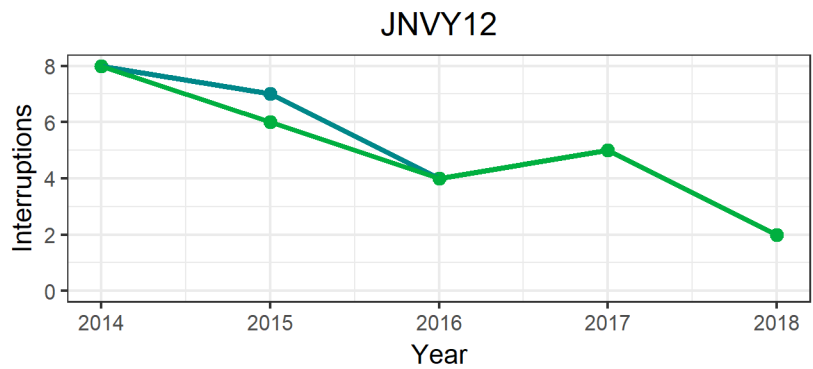
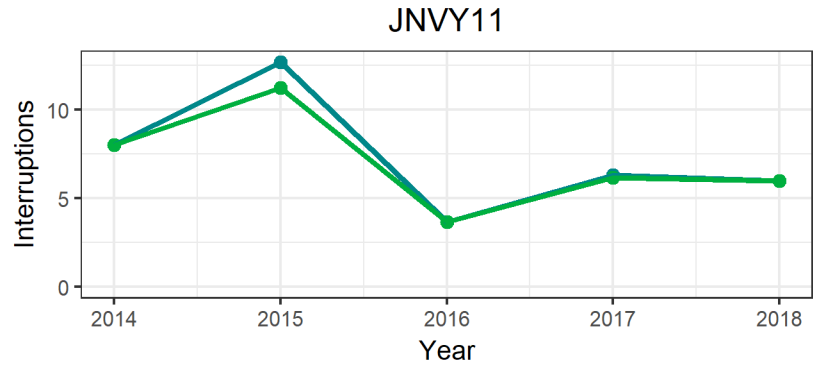
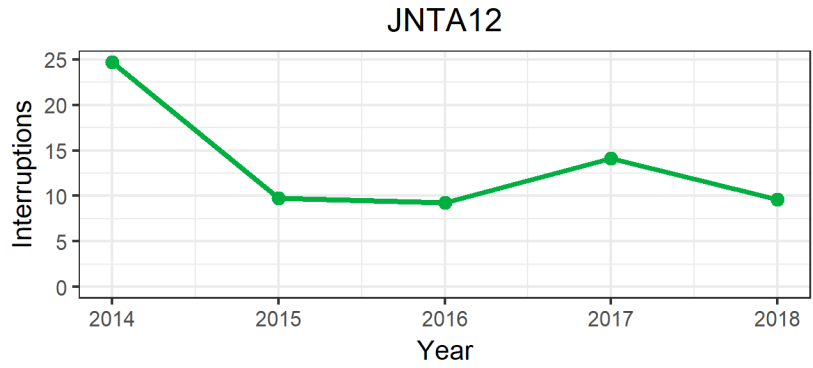
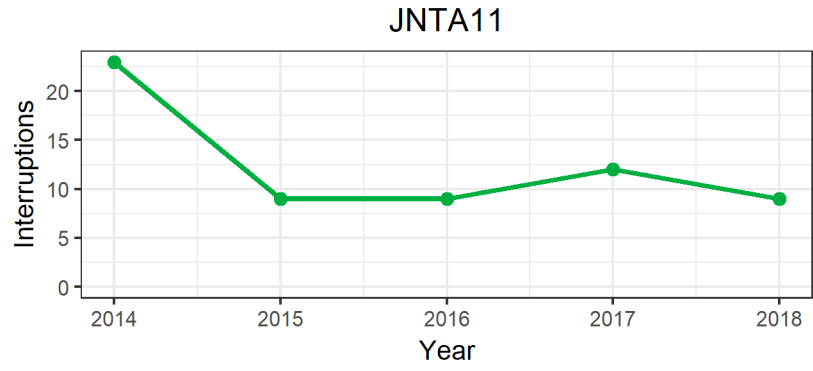
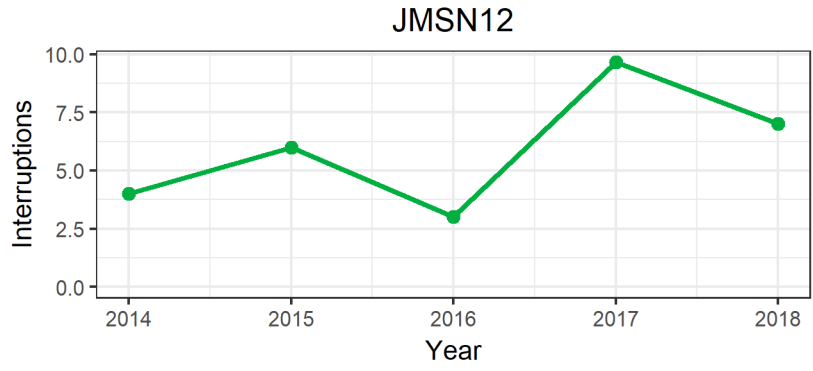
Table 8 Five Years of Circuit MAIFI_E

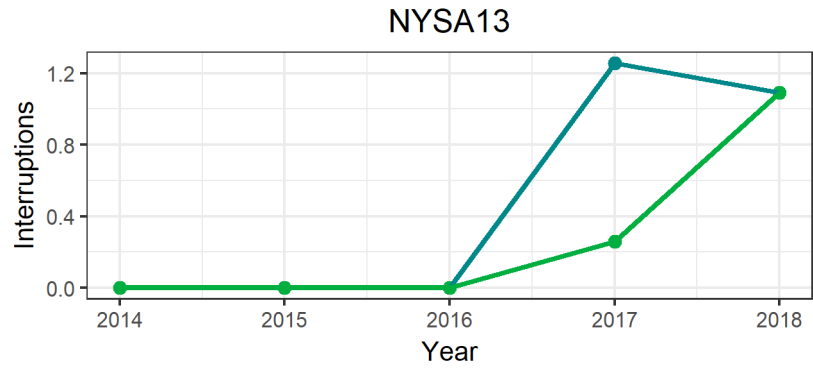
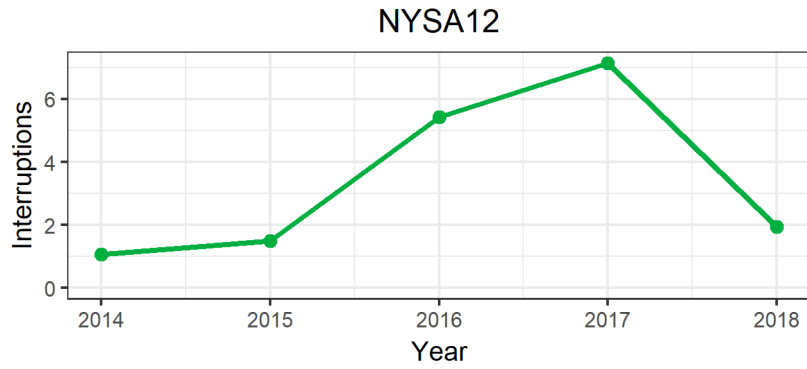
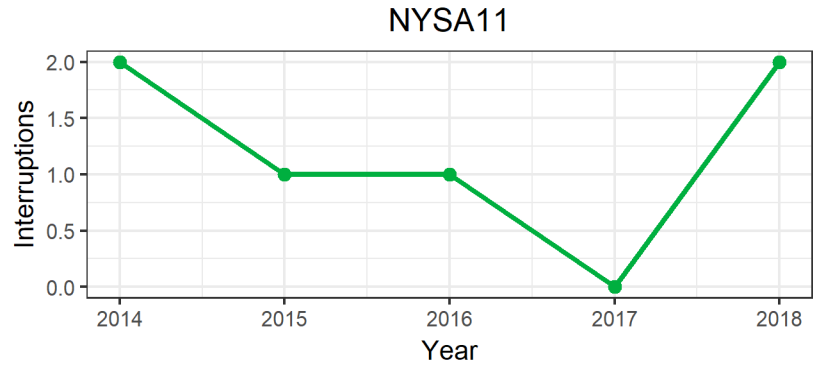
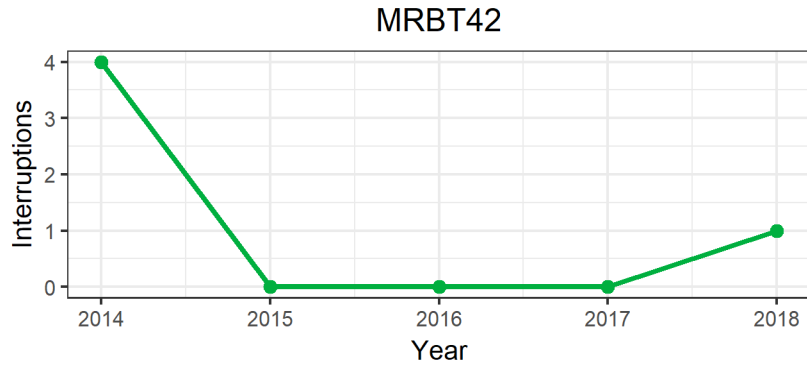
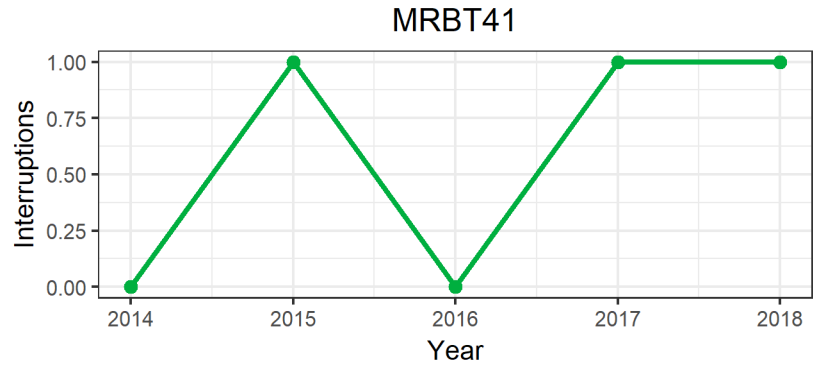
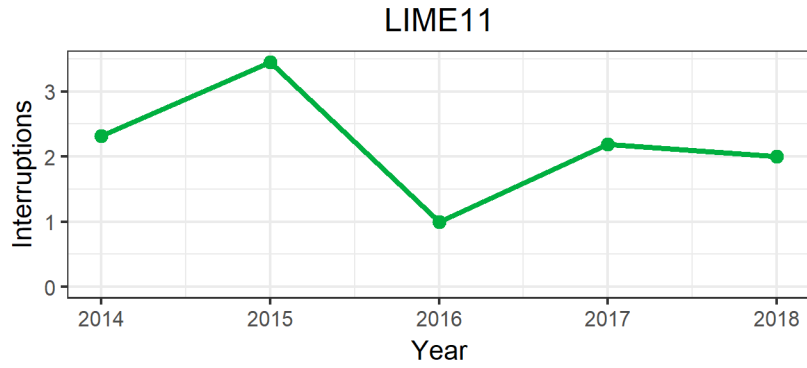


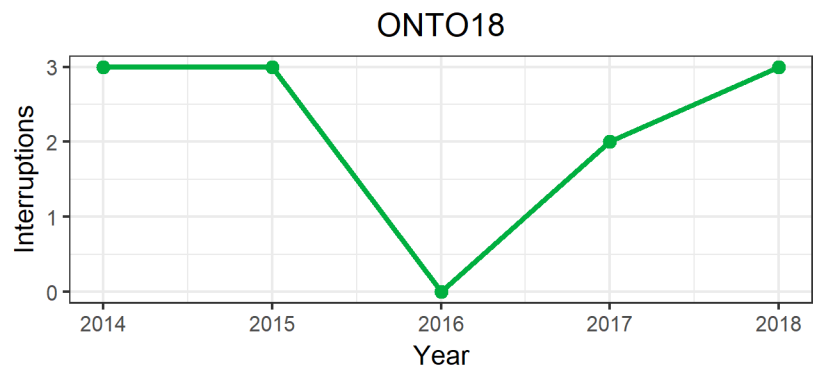
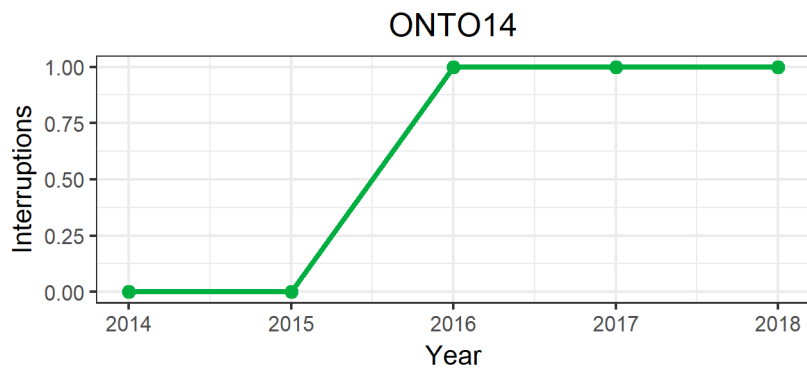
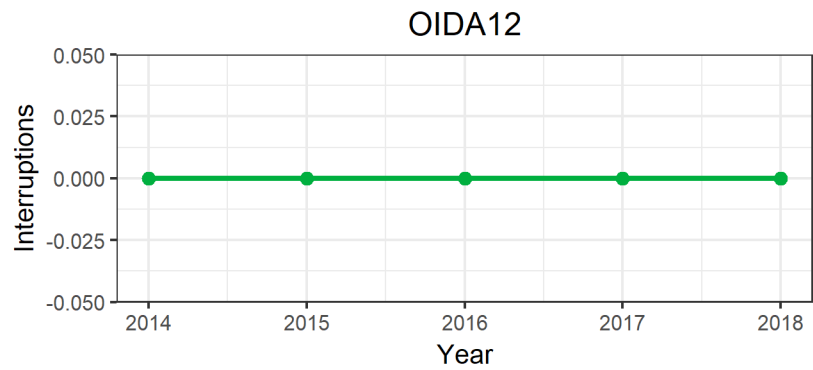
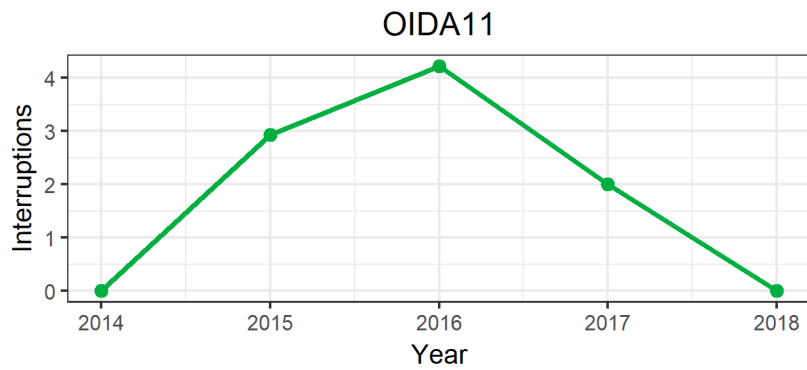
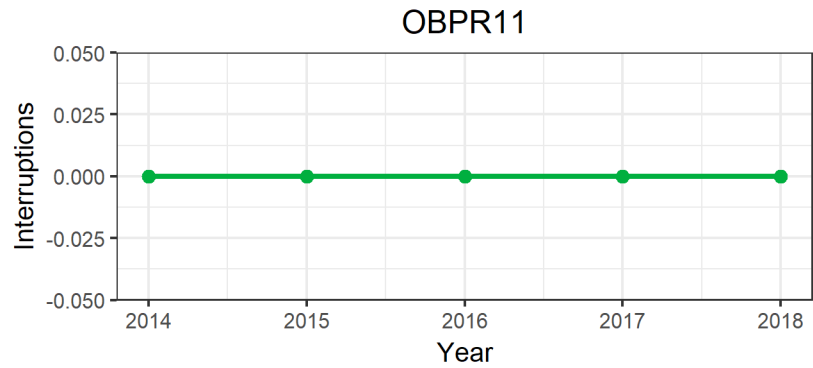
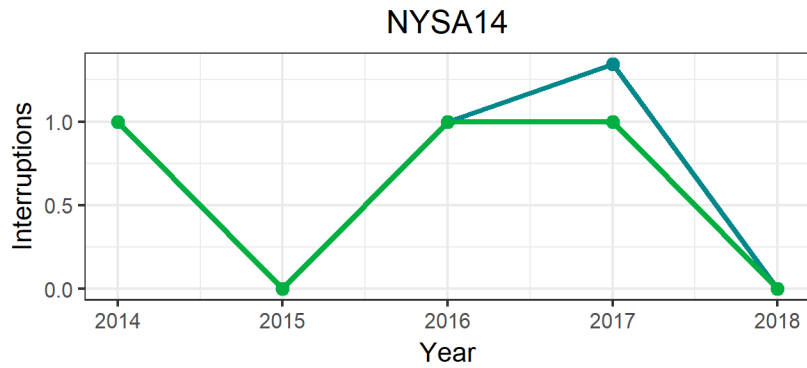


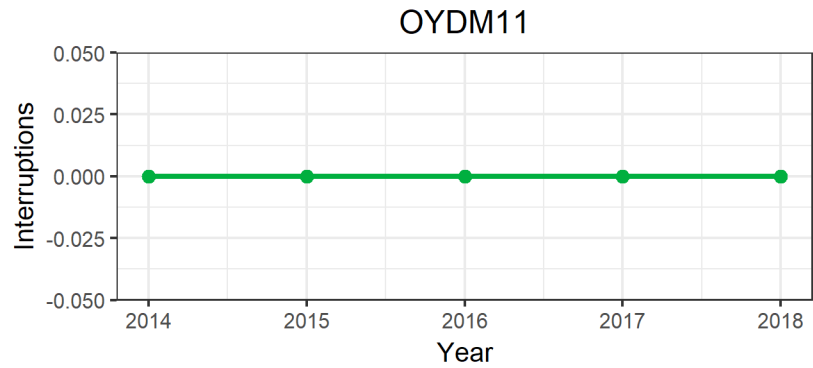
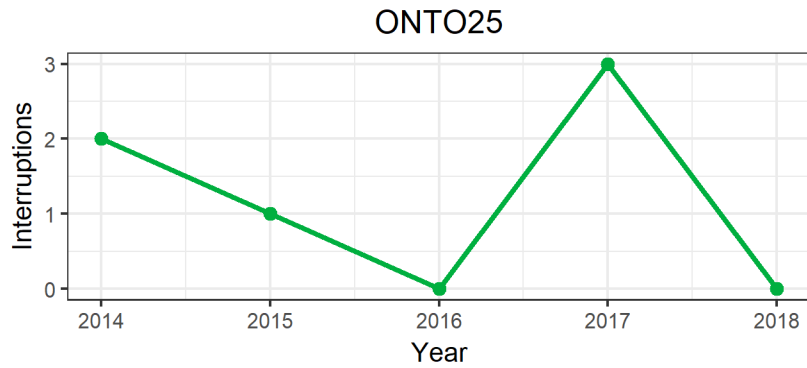
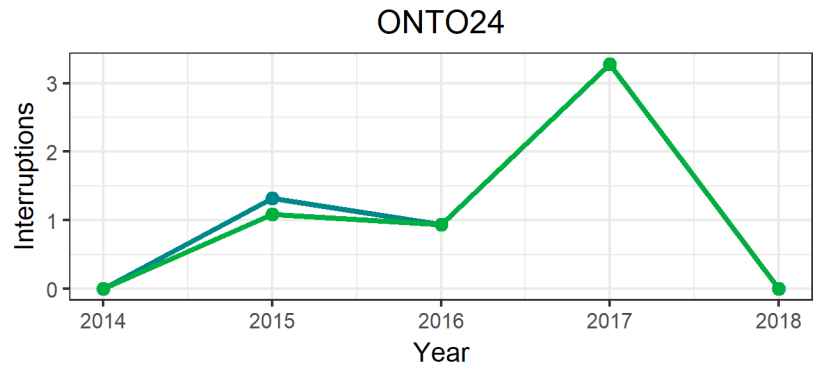
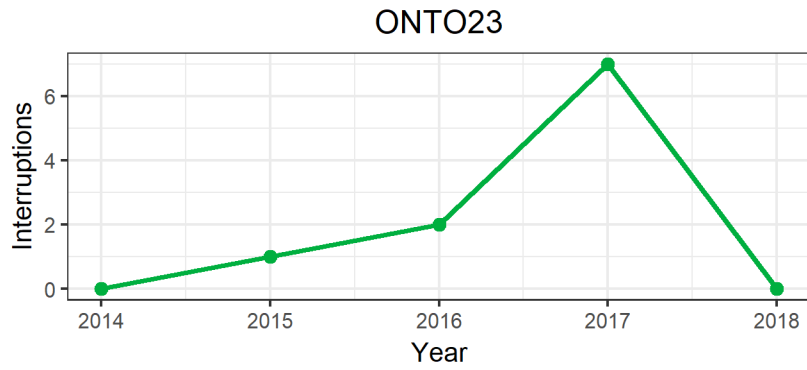
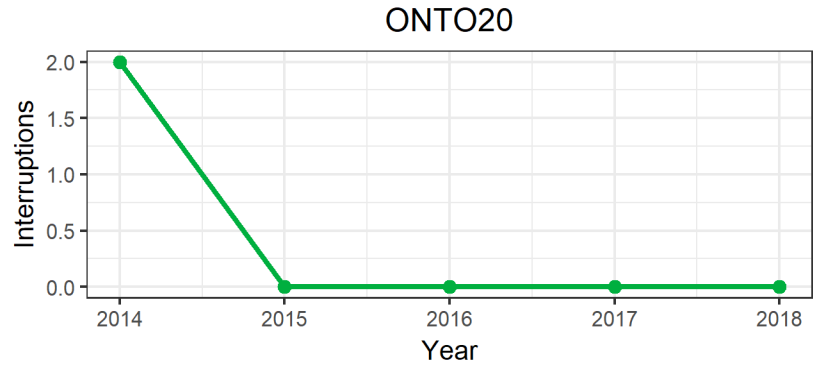
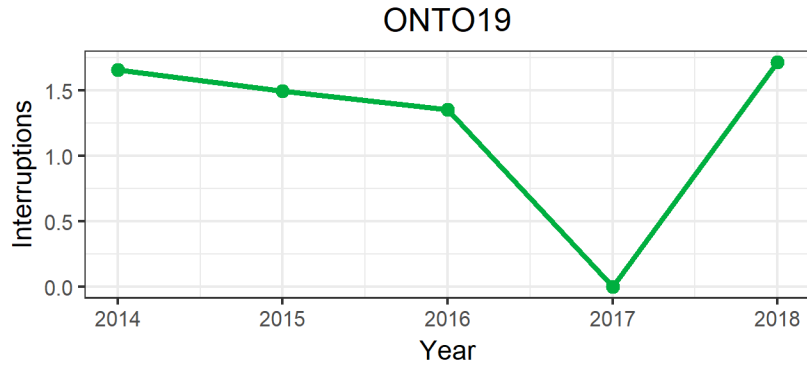


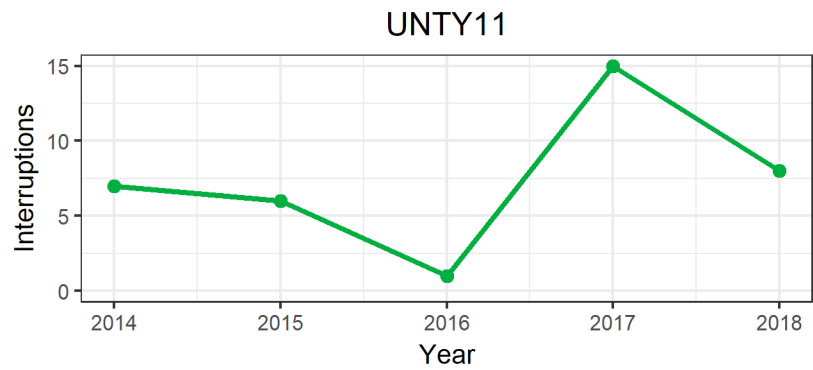
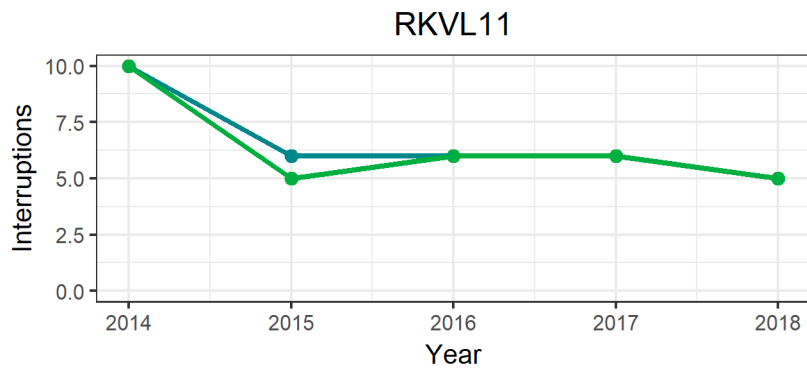
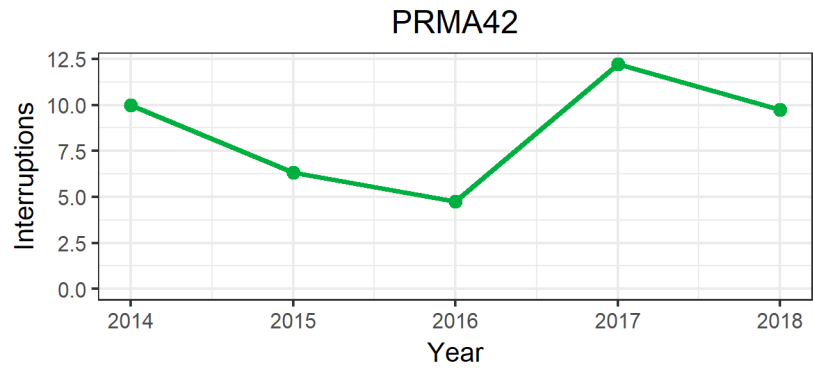
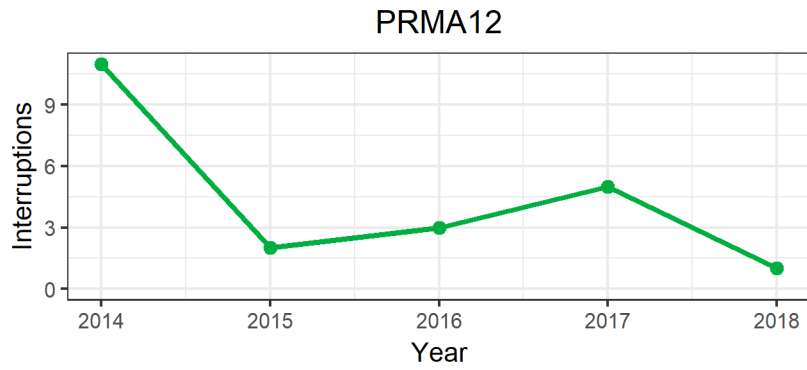
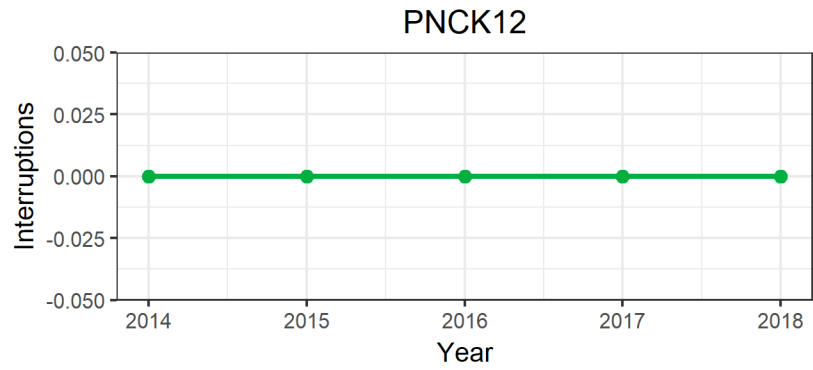
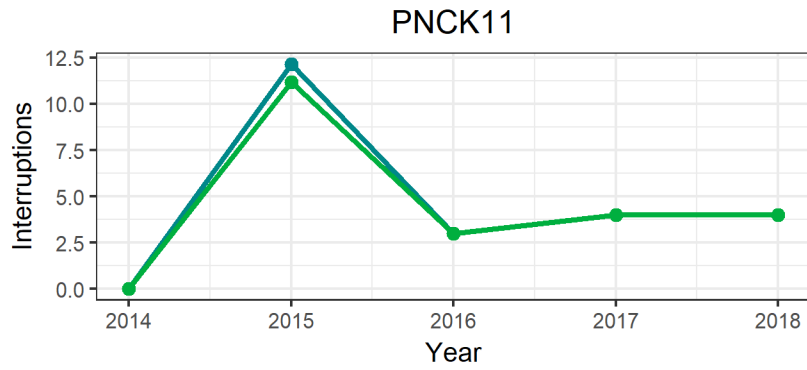


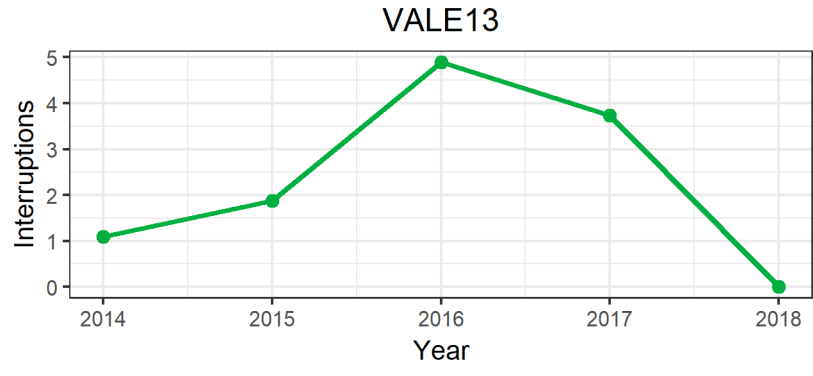
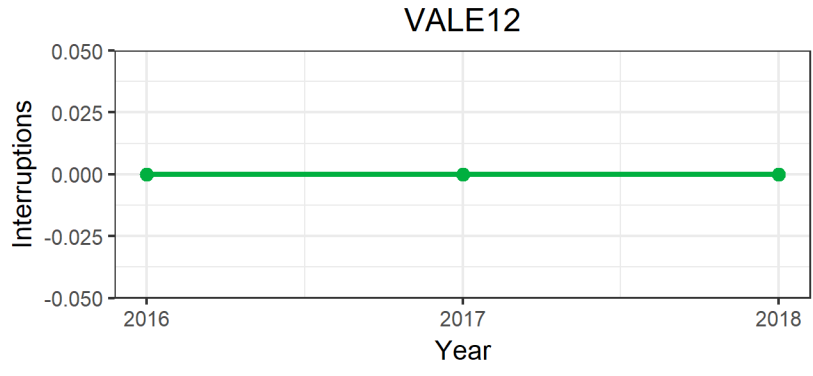
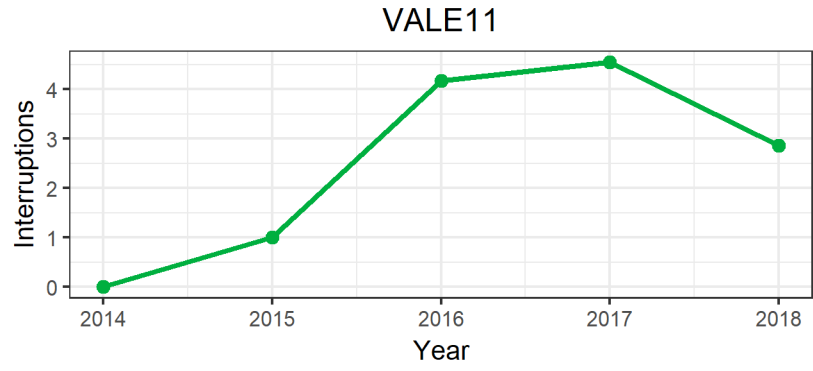
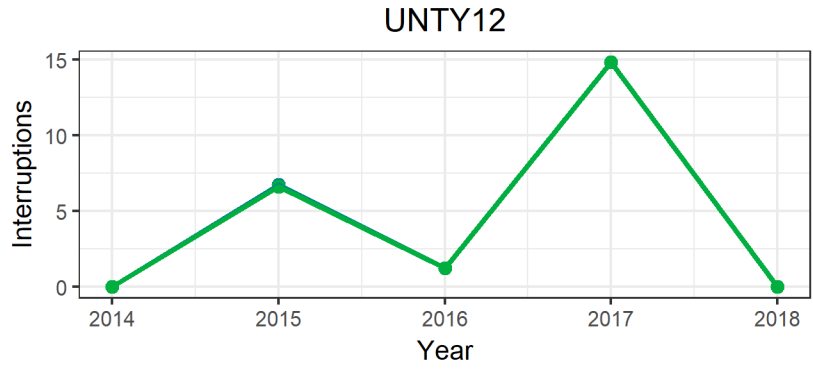












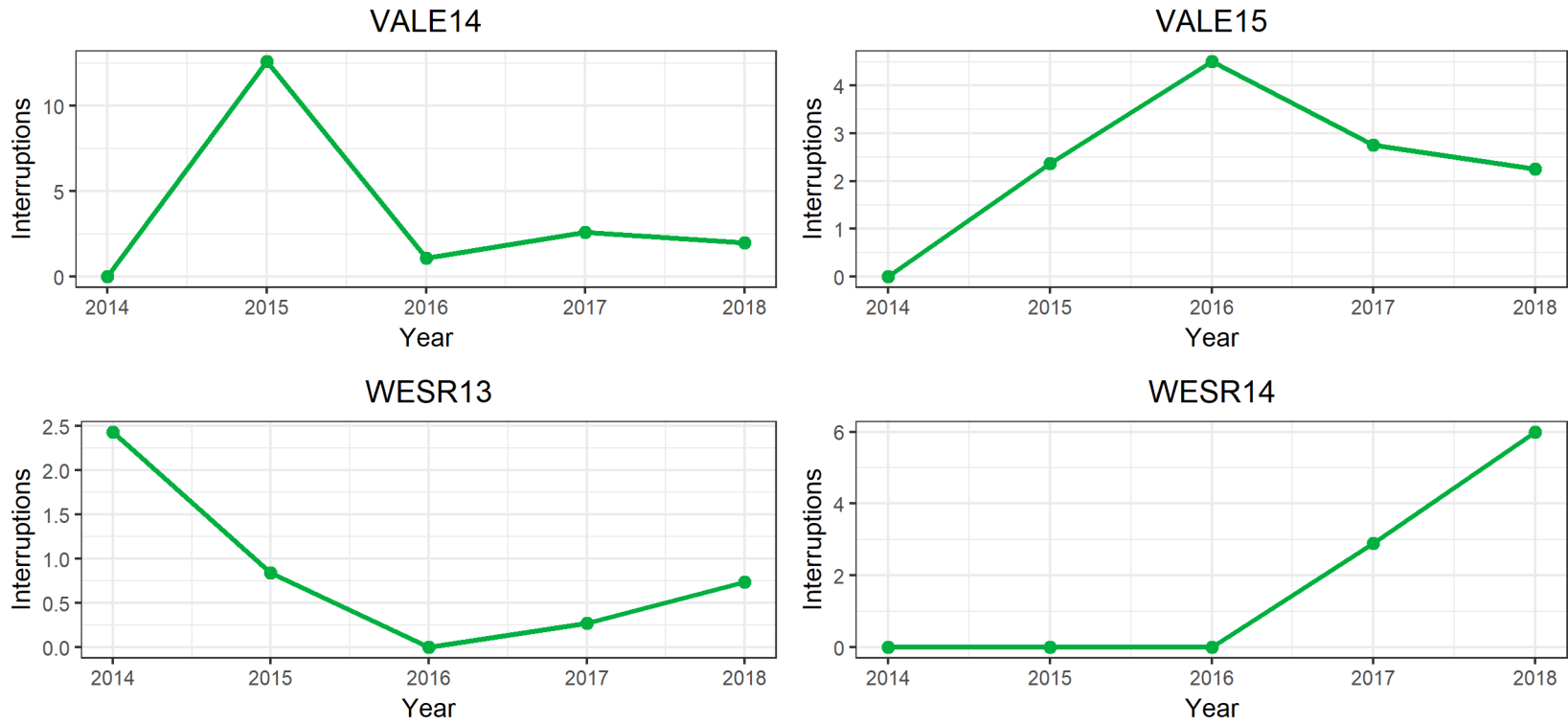


Figure 8 Five Years of Circuit MAIFI_E

2018 Descending Indices by Circuit

Circuit	SAIDI	SAIDI MedEx	Circuit	SAIFI	SAIFI MedEx	Circuit	MAIFI _E	MAIFI _E MedEx
CWVY11	16.00	16.00	ESTN11	5.00	5.00	ADRN12	13.20	13.20
DWSY11	15.68	15.68	DWSY11	4.63	4.63	CARO11	11.18	11.18
ESTN11	15.40	15.40	WESR14	3.73	3.73	PRMA42	9.74	9.74
UNTY11	12.35	12.35	JNVY31	3.01	3.01	JNTA12	9.63	9.63
UNTY12	11.57	11.57	MRBT42	3.00	3.00	DWSY11	9.00	9.00
ONTO24	11.00	11.00	ONTO24	2.85	2.85	JNTA11	9.00	9.00
CWVY12	10.77	10.77	PRMA42	2.64	2.64	UNTY11	8.00	8.00
HFVY12	7.87	7.87	PRMA12	2.33	2.33	JNVY31	7.24	7.24
PRMA42	7.15	7.15	HFVY12	2.32	2.32	CARO12	7.04	7.04
WESR14	6.98	6.98	JNTA12	2.24	2.24	JMSN12	7.00	7.00
VALE14	6.49	6.49	MRBT41	2.15	2.15	HMDL12	6.92	6.92
HRPR12	6.02	6.02	UNTY11	2.15	2.15	HFVY12	6.00	6.00
LIME11	5.65	5.65	CWVY11	2.14	2.14	HOLY12	6.00	6.00
PRMA12	5.04	5.04	UNTY12	2.06	2.06	JNVY11	6.00	6.00
JNTA12	4.73	4.73	JNTA11	2.03	2.03	WESR14	6.00	6.00
JNTA11	3.93	3.93	VALE15	1.69	1.69	CARO13	5.00	5.00
JNVY31	3.37	3.37	VALE14	1.59	1.59	CWVY11	5.00	5.00
HOPE11	3.32	3.32	HOPE11	1.57	1.57	RKVL11	5.00	5.00
MRBT41	2.78	2.78	LIME11	1.46	1.46	DRKE11	4.00	4.00
VALE15	2.72	2.72	HOLY13	1.37	1.37	PNCK11	4.00	4.00
CARO11	2.70	2.70	NYSA12	1.33	1.33	ADRN11	3.50	3.50
MRBT42	2.65	2.65	ADRN11	1.29	1.29	HRPR12	3.27	3.27
HFVY11	2.60	2.60	JMSN11	1.23	1.23	CWVY12	3.00	3.00
JNVY11	2.59	2.59	HFVY11	1.23	1.23	ONTO18	3.00	3.00
JMSN11	2.24	2.24	ONTO19	1.22	1.22	VALE11	2.86	2.86
ONTO19	2.05	2.05	JNVY12	1.16	1.16	VALE15	2.25	2.25
HRPR11	2.03	2.03	CWVY12	1.13	1.13	DUKE11	2.00	2.00
DUKE11	1.90	1.90	HMDL12	1.13	1.13	HGTN11	2.00	2.00
WESR13	1.89	1.89	ONTO18	1.12	1.12	HOLY13	2.00	2.00
NYSA12	1.87	1.87	JNVY11	1.11	1.11	HOPE11	2.00	2.00
JNVY12	1.70	1.70	HRPR11	1.10	1.10	HRPR11	2.00	2.00
HMDL12	1.67	1.67	WESR13	1.08	1.08	JNVY12	2.00	2.00
ONTO18	1.48	1.48	JMSN12	1.07	1.07	LIME11	2.00	2.00
HOLY13	1.35	1.35	HRPR12	1.04	1.04	NYSA11	2.00	2.00
RKVL11	1.29	1.29	DUKE11	1.04	1.04	VALE14	2.00	2.00
JMSN12	1.10	1.10	RKVL11	1.00	1.00	NYSA12	1.95	1.95
CARO12	0.99	0.99	VALE11	0.74	0.74	HFVY11	1.79	1.79
VALE11	0.92	0.92	CARO12	0.46	0.46	ONTO19	1.72	1.72
ADRN11	0.83	0.83	VALE13	0.33	0.33	NYSA13	1.09	1.09
OIDA11	0.78	0.78	ONTO20	0.32	0.32	MRBT41	1.00	1.00
VALE13	0.69	0.69	CARO11	0.30	0.30	MRBT42	1.00	1.00
PNCK11	0.69	0.69	OIDA11	0.29	0.29	ONTO14	1.00	1.00
ONTO20	0.51	0.51	PNCK11	0.25	0.25	PRMA12	1.00	1.00
DRKE11	0.48	0.48	HOLY12	0.24	0.24	WESR13	0.74	0.74
HOLY12	0.41	0.41	ONTO23	0.21	0.21	JMSN11	0.70	0.70
ADRN12	0.41	0.41	NYSA11	0.18	0.18	ESTN11	0.00	0.00
ONTO23	0.28	0.28	DRKE11	0.18	0.18	HCSU11	0.00	0.00
OYDM11	0.28	0.28	ONTO25	0.17	0.17	HGTN12	0.00	0.00
NYSA13	0.22	0.22	NYSA13	0.15	0.15	HOLY11	0.00	0.00
NYSA14	0.22	0.22	NYSA14	0.14	0.14	NYSA14	0.00	0.00
NYSA11	0.21	0.21	VALE12	0.14	0.14	OBPR11	0.00	0.00
VALE12	0.15	0.15	OYDM11	0.13	0.13	OIDA11	0.00	0.00
CARO13	0.13	0.13	ADRN12	0.11	0.11	OIDA12	0.00	0.00
ONTO25	0.12	0.12	HOLY11	0.08	0.08	ONTO20	0.00	0.00
HOLY11	0.09	0.09	CARO13	0.06	0.06	ONTO23	0.00	0.00
HGTN12	0.03	0.03	HGTN12	0.01	0.01	ONTO24	0.00	0.00
HGTN11	0.01	0.01	HGTN11	0.01	0.01	ONTO25	0.00	0.00
HCSU11	0.00	0.00	HCSU11	0.00	0.00	OYDM11	0.00	0.00
OBPR11	0.00	0.00	OBPR11	0.00	0.00	PNCK12	0.00	0.00
OIDA12	0.00	0.00	OIDA12	0.00	0.00	UNTY12	0.00	0.00
ONTO14	0.00	0.00	ONTO14	0.00	0.00	VALE12	0.00	0.00
PNCK12	0.00	0.00	PNCK12	0.00	0.00	VALE13	0.00	0.00

Table 9 2018 Descending Indices by Circuit

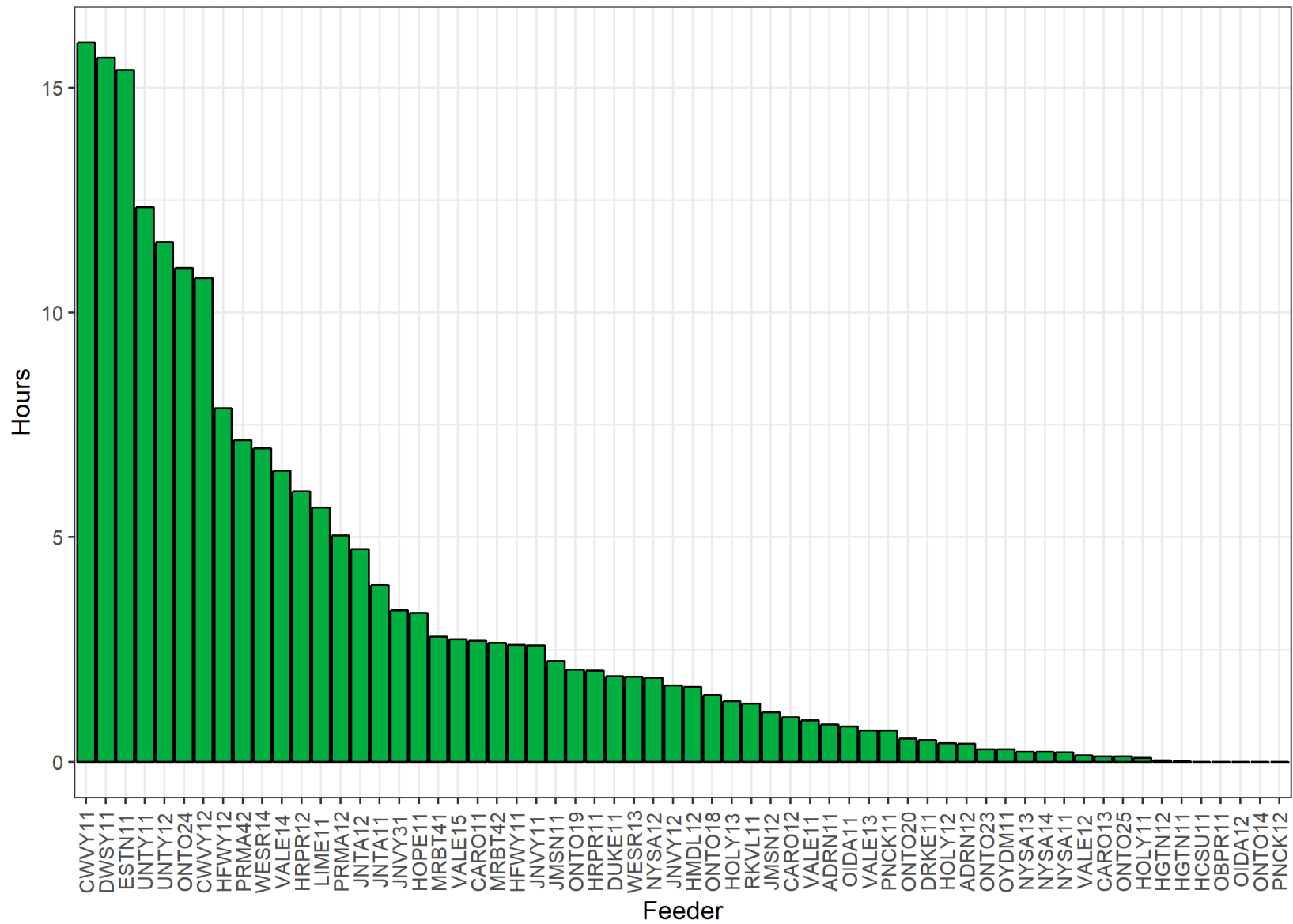


Figure 9 2018 Descending SAIDI by Circuit

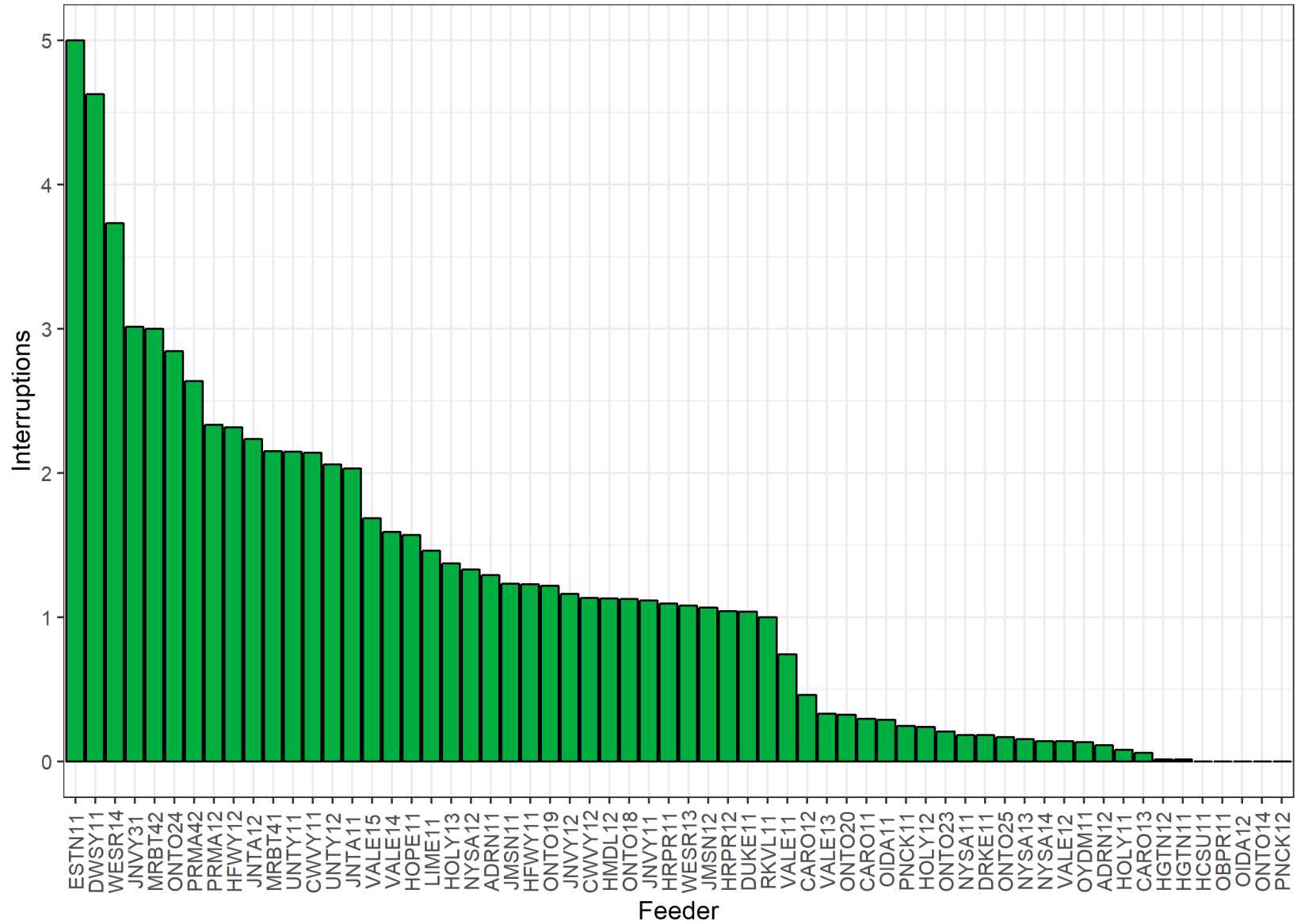


Figure 10 2018 Descending SAIFI by Circuit

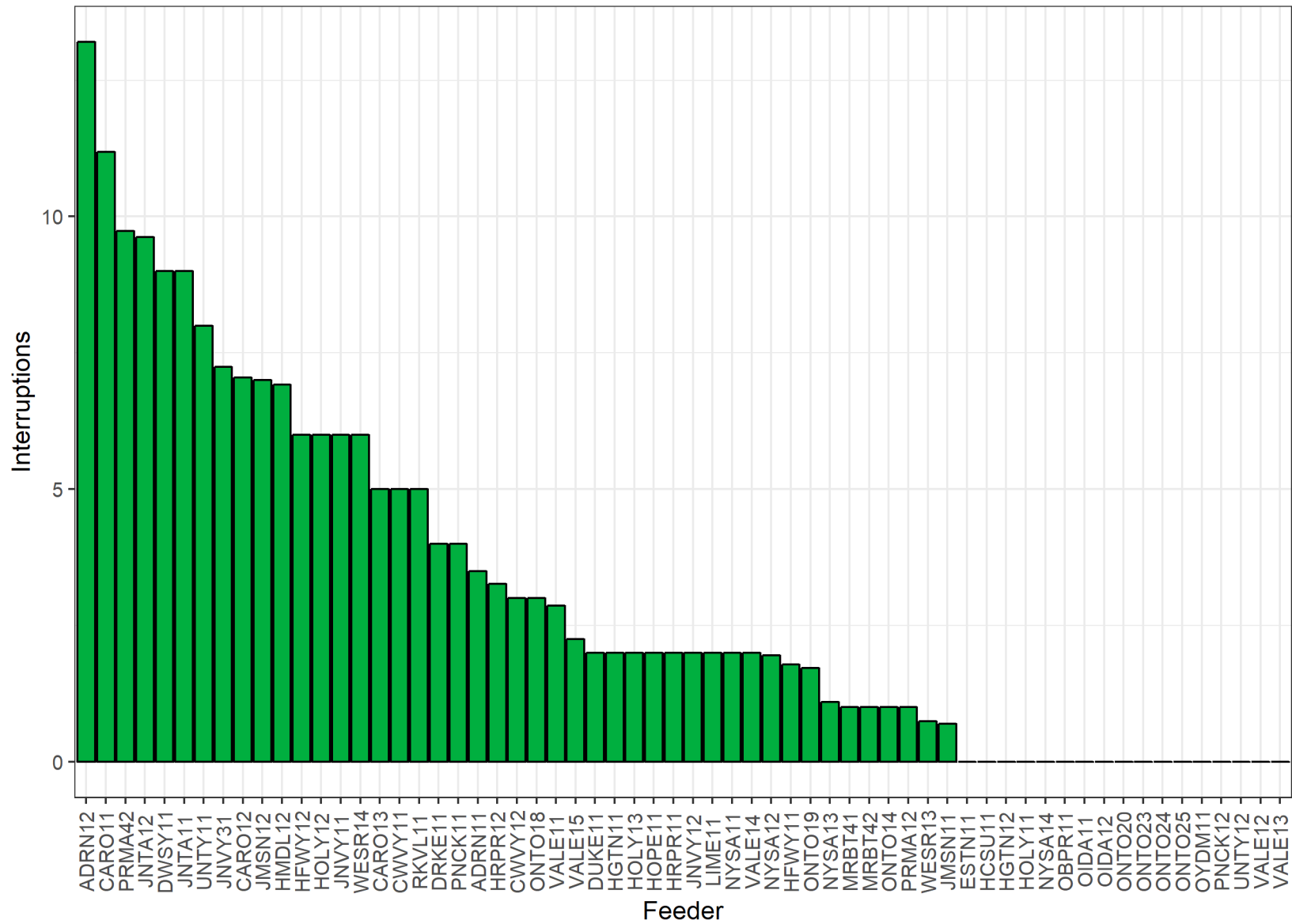


Figure 11 2018 Descending MAIFIE by Circuit

APPENDIX

Circuit Reference Information

Circuit	Substation	Operating Area	Voltage (kV)	Customers*
ADRN11	Adrian	Western	12.5	385
ADRN12	Adrian	Western	12.5	590
CARO11	Cairo	Western	12.5	1,217
CARO12	Cairo	Western	12.5	93
CARO13	Cairo	Western	12.5	736
CWVY11	Cow Valley	Western	12.5	43
CWVY12	Cow Valley	Western	12.5	112
DRKE11	Durkee	Western	12.5	164
DUKE11	Duke	Western	12.5	27
DWSY11	Drewsey	Western	12.5	182
ESTN11	Easton	Western	12.5	3
HCSU11	Hells Canyon	Western	12.5	2
HFVY11	Halfway	Western	12.5	760
HFVY12	Halfway	Western	12.5	538
HGTN11	Huntington	Western	12.5	76
HGTN12	Huntington	Western	12.5	303
HMDL12	Homedale	Canyon	12.5	148
HOLY11	Holly	Western	12.5	187
HOLY12	Holly	Western	12.5	80
HOLY13	Holly	Western	12.5	166
HOPE11	Hope	Western	12.5	153
HRPR11	Harper	Western	12.5	105
HRPR12	Harper	Western	12.5	185
JMSN11	Jamieson	Western	12.5	394
JMSN12	Jamieson	Western	12.5	243
JNTA11	Juntura	Western	12.5	60
JNTA12	Juntura	Western	12.5	51
JNVY11	Jordan Valley	Canyon	12.5	87
JNVY12	Jordan Valley	Canyon	12.5	100
JNVY31	Jordan Valley	Canyon	25	302
LIME11	Lime	Western	12.5	117
MRBT41	Malheur Butte	Western	34.5	33
MRBT42	Malheur Butte	Western	34.5	10
NYSA11	Nyssa	Western	12.5	843
NYSA12	Nyssa	Western	12.5	310
NYSA13	Nyssa	Western	12.5	729
NYSA14	Nyssa	Western	12.5	248
OBPR11	Oxbow	Western	12.5	1
OIDA11	Ore-Ida	Western	12.5	640
OIDA12	Ore-Ida	Western	12.5	1
ONTO14	Ontario	Western	12.5	34
ONTO18	Ontario	Western	12.5	842
ONTO19	Ontario	Western	12.5	1,804
ONTO20	Ontario	Western	12.5	1,202
ONTO23	Ontario	Western	12.5	48
ONTO24	Ontario	Western	12.5	681
ONTO25	Ontario	Western	12.5	493
OYDM11	Owyhee Dam	Western	12.5	15
PNCK11	Pine Creek	Western	12.5	93
PNCK12	Pine Creek	Western	12.5	2
PRMA12	Parma	Western	12.5	3
PRMA42	Parma	Western	34.5	184
RKVL11	Rockville	Canyon	12.5	31
UNTY11	Unity	Western	12.5	147
UNTY12	Unity	Western	12.5	230
VALE11	Vale	Western	12.5	1,025
VALE12	Vale	Western	12.5	50
VALE13	Vale	Western	12.5	549
VALE14	Vale	Western	12.5	301
VALE15	Vale	Western	12.5	462
WESR13	Weiser	Western	12.5	195
WESR14	Weiser	Western	12.5	30

Table 10 Circuit Reference Information

*Some circuits have customers in Idaho and Oregon. The counts are for Oregon customers only as of 12/31/2018.

Five Years of System Pole and Trench Miles

Year	Overhead (OH) Pole Miles	Underground (UG) Trench Miles	Distribution All Miles	Transmission Line (Structure/Pole) Miles*	Percent OH / UG
2018	2,111.71	91.85	2,203.55	757.13	96%/4%
2017	2,114.53	98.94	2,213.48	759.36	96%/4%
2016	2,131.38	97.93	2,229.31	760.34	96%/4%
2015	2,118.88	95.44	2,214.32	759.81	96%/4%
2014	2,116.10	95.45	2,211.55	692.49	96%/4%

Table 11 Five Years of System Pole and Trench Miles

*Transmission line miles include some lines that do not directly serve customer load.

2018 Major Event Day System Summary

Date	Cause	Customers	CMI	CI	SAIDI (Minutes)	SAIFI	CAIDI (Minutes)
No MEDs							

Table 12 2018 MED System Summary

2018 Major Event Day Feeder Summary

Date	Feeder	Customers	CMI	CI	SAIDI (Minutes)	SAIFI	CAIDI (Minutes)
No MEDs							

Table 13 2018 MED Feeder Summary

Five Years of Major Event Days

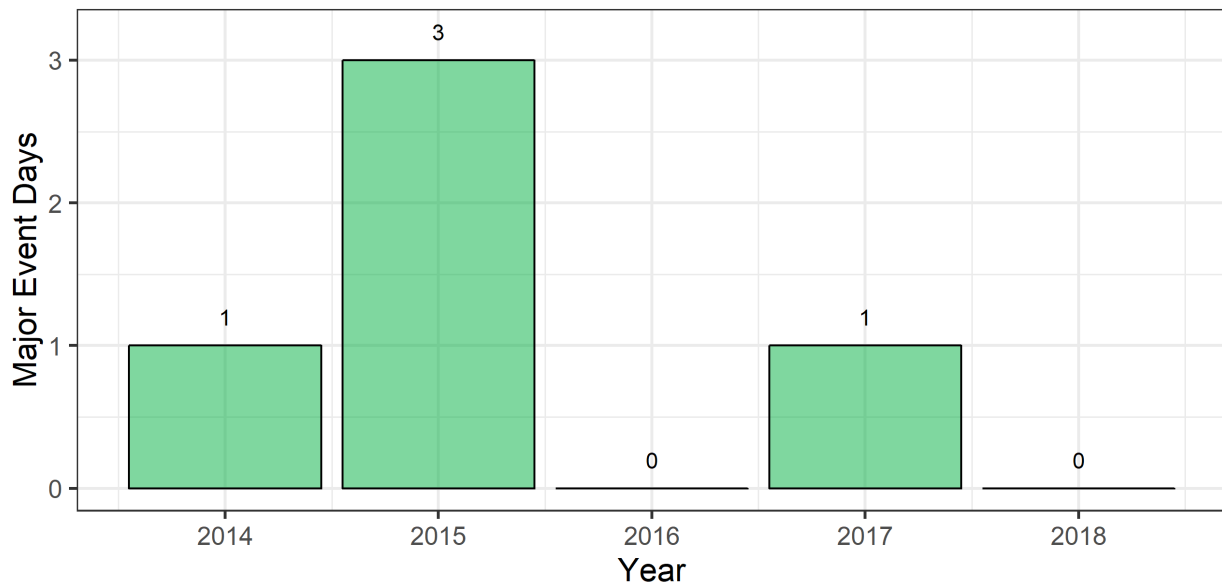


Figure 12 Five Years of MEDs

Cause Category Translation

Idaho Power Cause	OAR 860-023-0151 (2)(b) Cause
Loss of Supply – Transmission*	Loss of Supply – Transmission
Loss of Supply – Station*	Loss of Supply – Substation
Corrosion/Rot	Distribution – Equipment
Electrical Failure	Distribution – Equipment
Loose Hardware	Distribution – Equipment
Mechanical Failure	Distribution – Equipment
Improper Installation	Distribution – Equipment
Contamination	Distribution – Equipment
Lightning	Distribution – Lightning
Other IPC Circuit	Distribution – Other
Other (Define in Comments)	Distribution – Other
Safety Precaution	Distribution – Other
Utility Operating Error	Distribution – Other
Planned Maintenance	Distribution – Planned
Structures (Signs, Buildings)	Distribution – Public
Construction/Dig-in	Distribution – Public
Foreign Object (Pipe, Kite, Tree Trim)	Distribution – Public
Vandalism	Distribution – Public
Vehicle Collision	Distribution – Public
Momentary (Tripping)	Distribution – Unknown
Unknown	Distribution – Unknown
Tree/Vegetation	Distribution – Vegetation
Loading/Unloading (Snow, Ice)	Distribution – Weather (Non-Lightning)
Unstable Earth	Distribution – Weather (Non-Lightning)
Load Shed/Transfer	Distribution – Weather (Non-Lightning)
Wildland/Building Fire	Distribution – Weather (Non-Lightning)
Overload/Cold Load	Distribution – Weather (Non-Lightning)
Bird – Non Raptor	Distribution – Wildlife
Bird – Raptor	Distribution – Wildlife
Large Animal (Livestock)	Distribution – Wildlife
Small Animal	Distribution – Wildlife

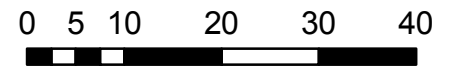
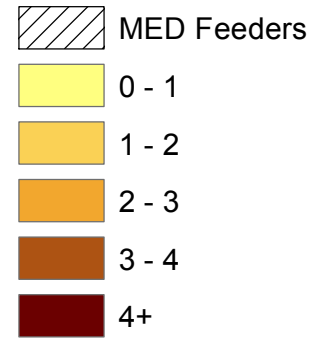
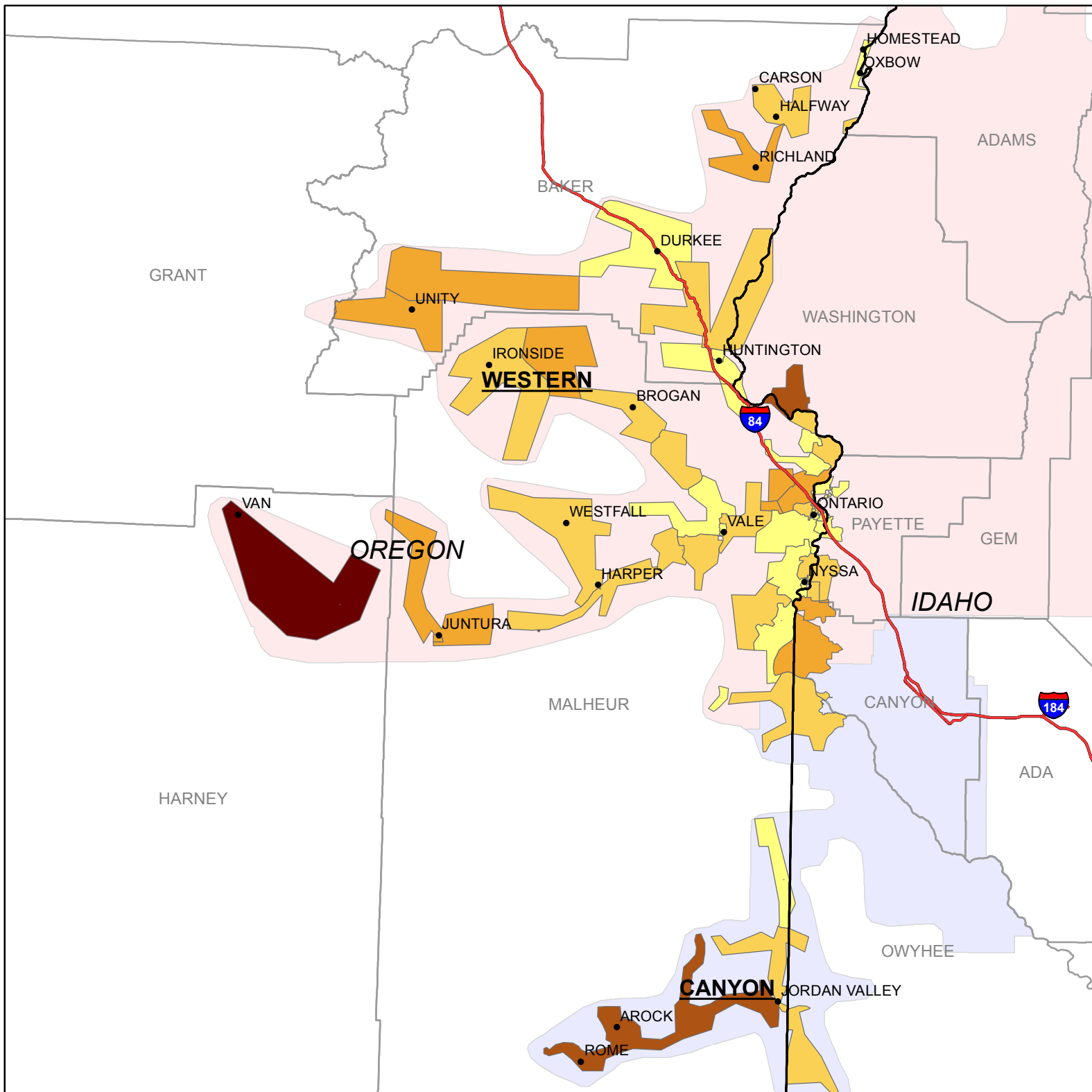
Table 14 Cause Category Translation

*These are also identified from the Idaho Power SYSTEM field. This field has values for “Transmission”, “Substation”, “Distribution Primary OH”, “Distribution Primary UG”, “Secondary/Service OH” and “Secondary/Service UG”. So, Loss of Supply – Transmission in this report includes events where the CAUSE field was “Loss of Supply – Transmission” **or** the SYSTEM field was “Transmission”, and Loss of Supply – Substation includes events where the CAUSE field was “Loss of Supply – Station” **or** the SYSTEM field was “Substation”.

MAPS

This is a placeholder for the maps.

2018 SAIFI With MED Oregon Area

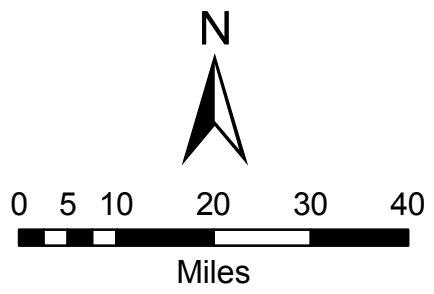
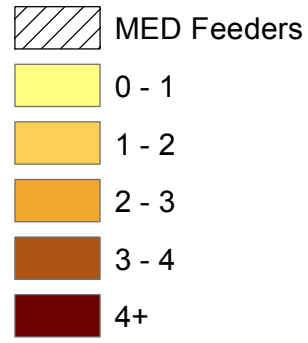
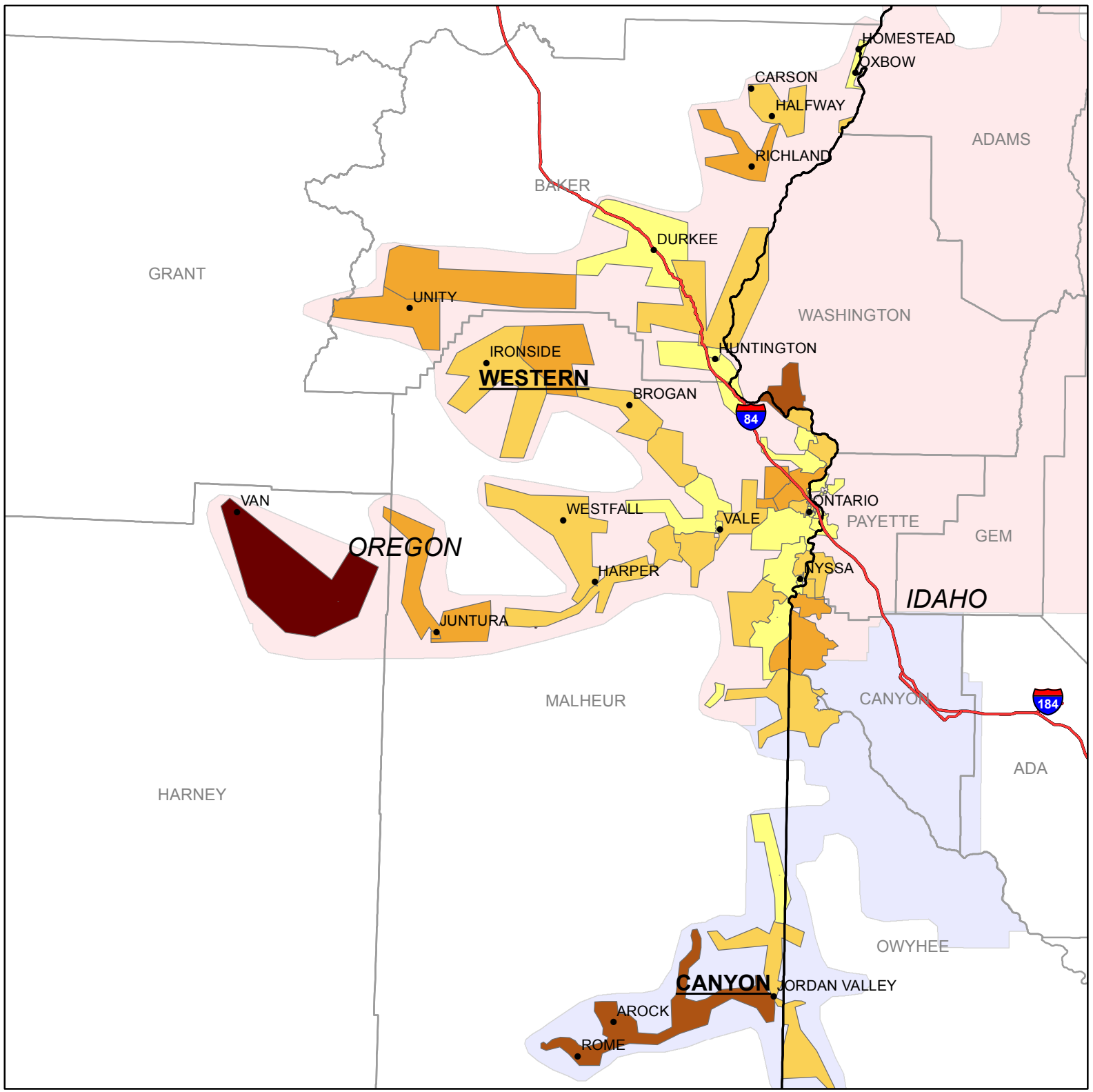


Miles

1/9/2019



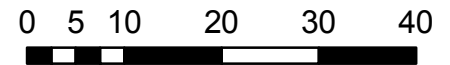
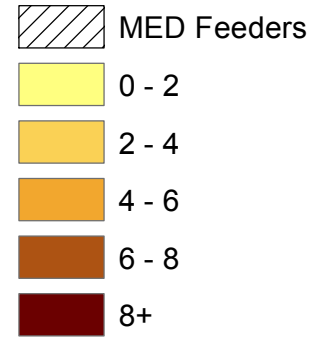
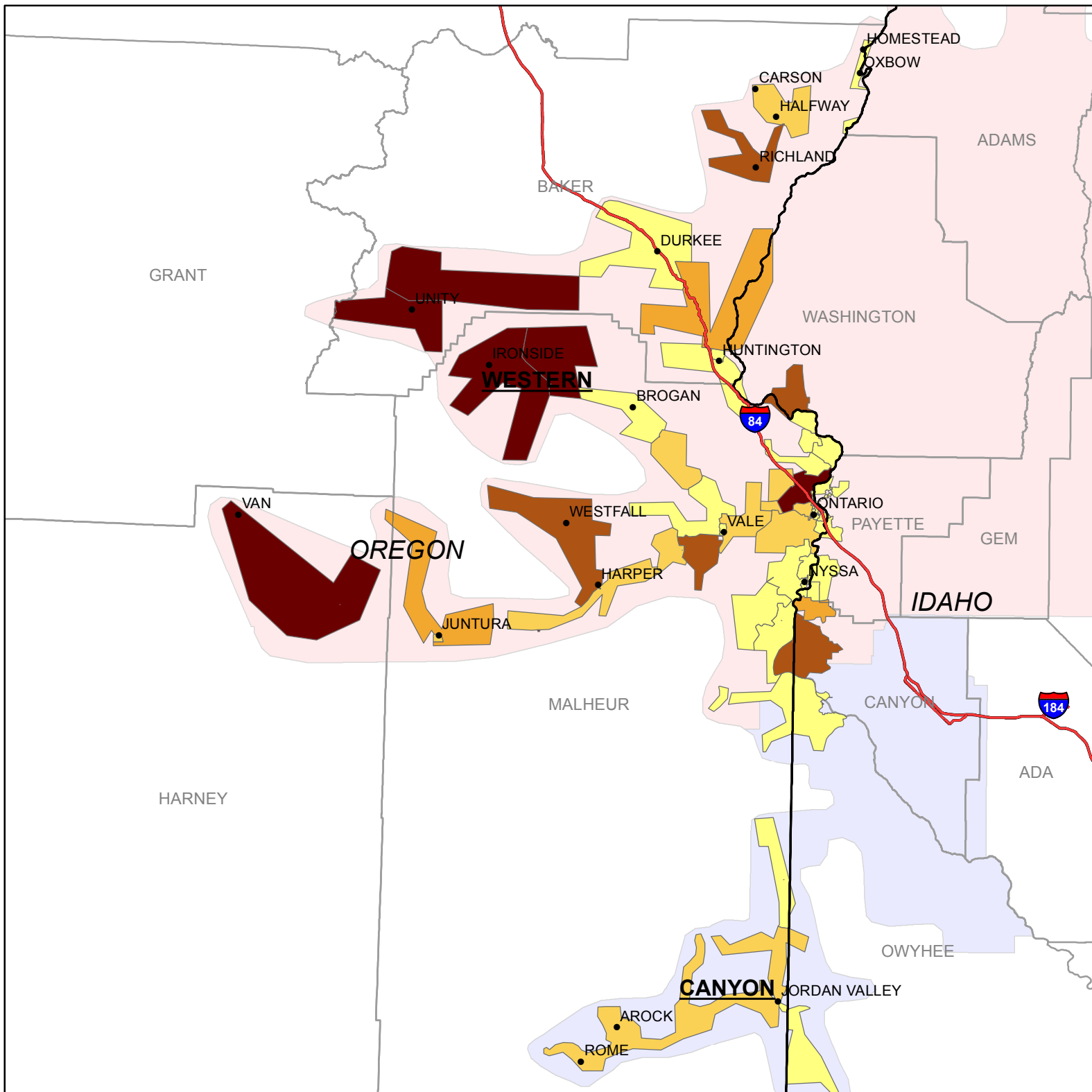
2018 SAIFI Without MED Oregon Area



1/9/2019



2018 SAIDI With MED Oregon Area

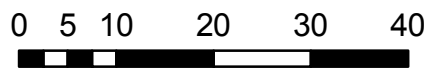
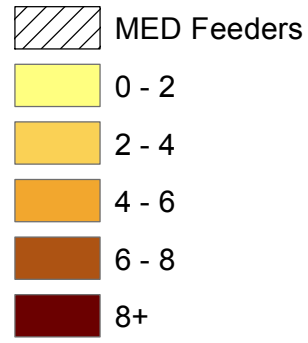
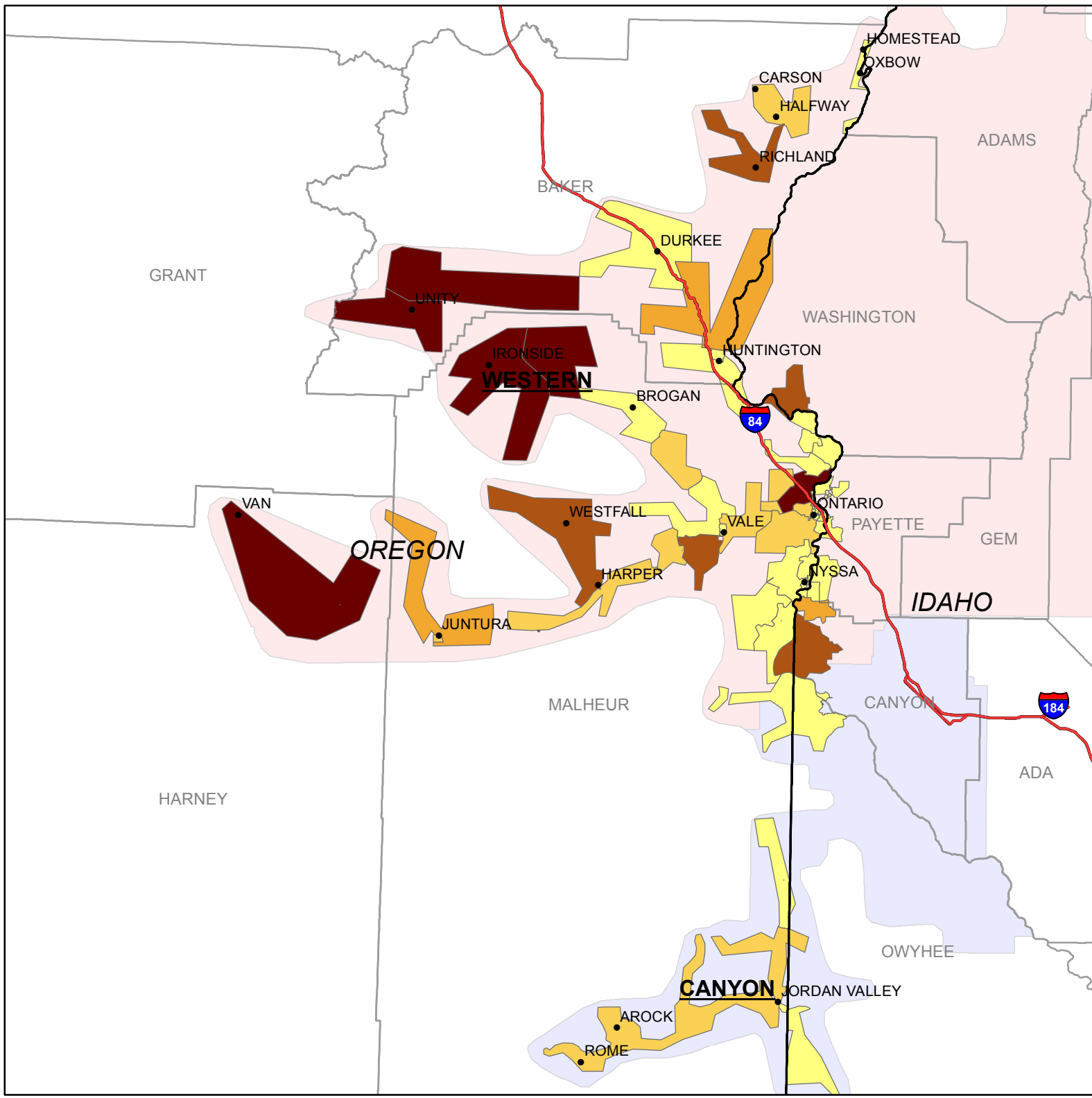


Miles

1/9/2019



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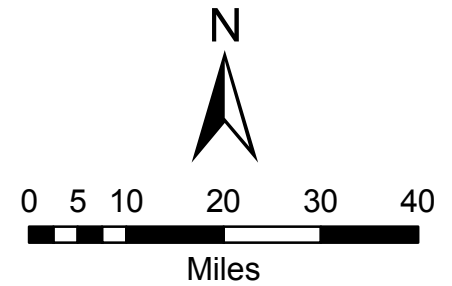
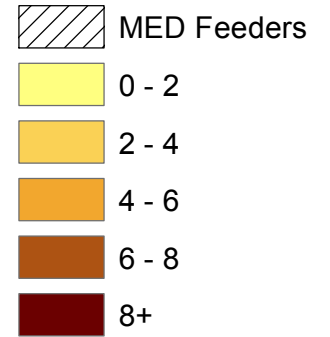
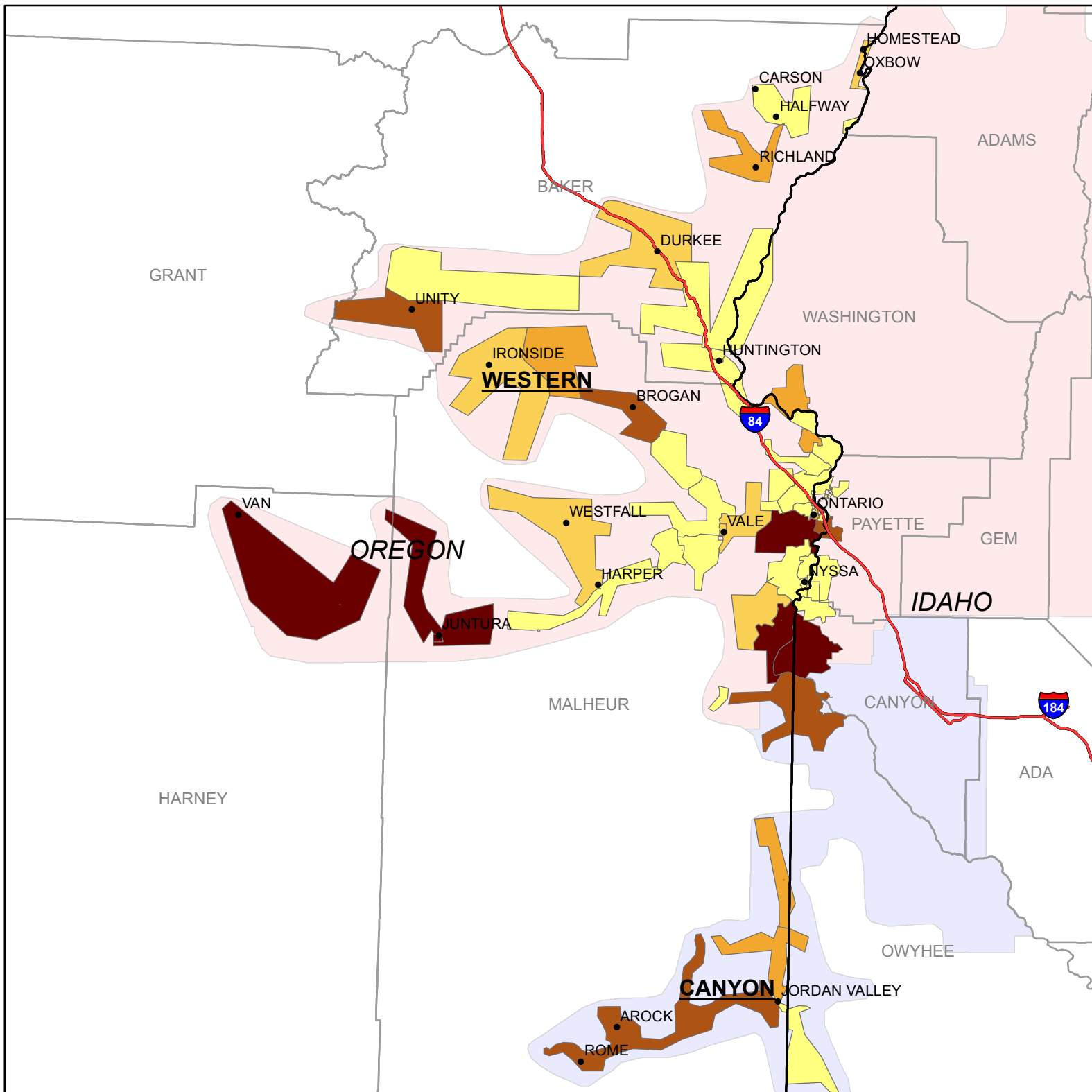


Miles

1/9/2019



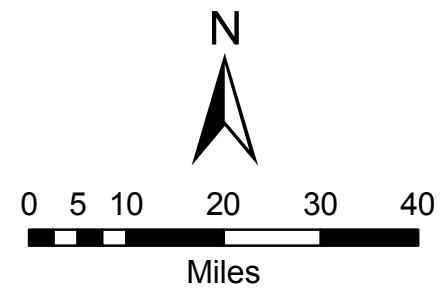
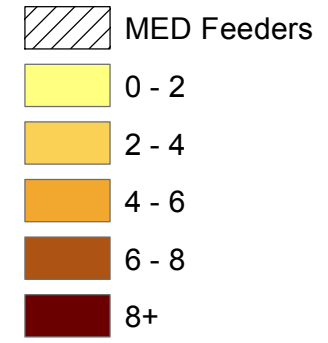
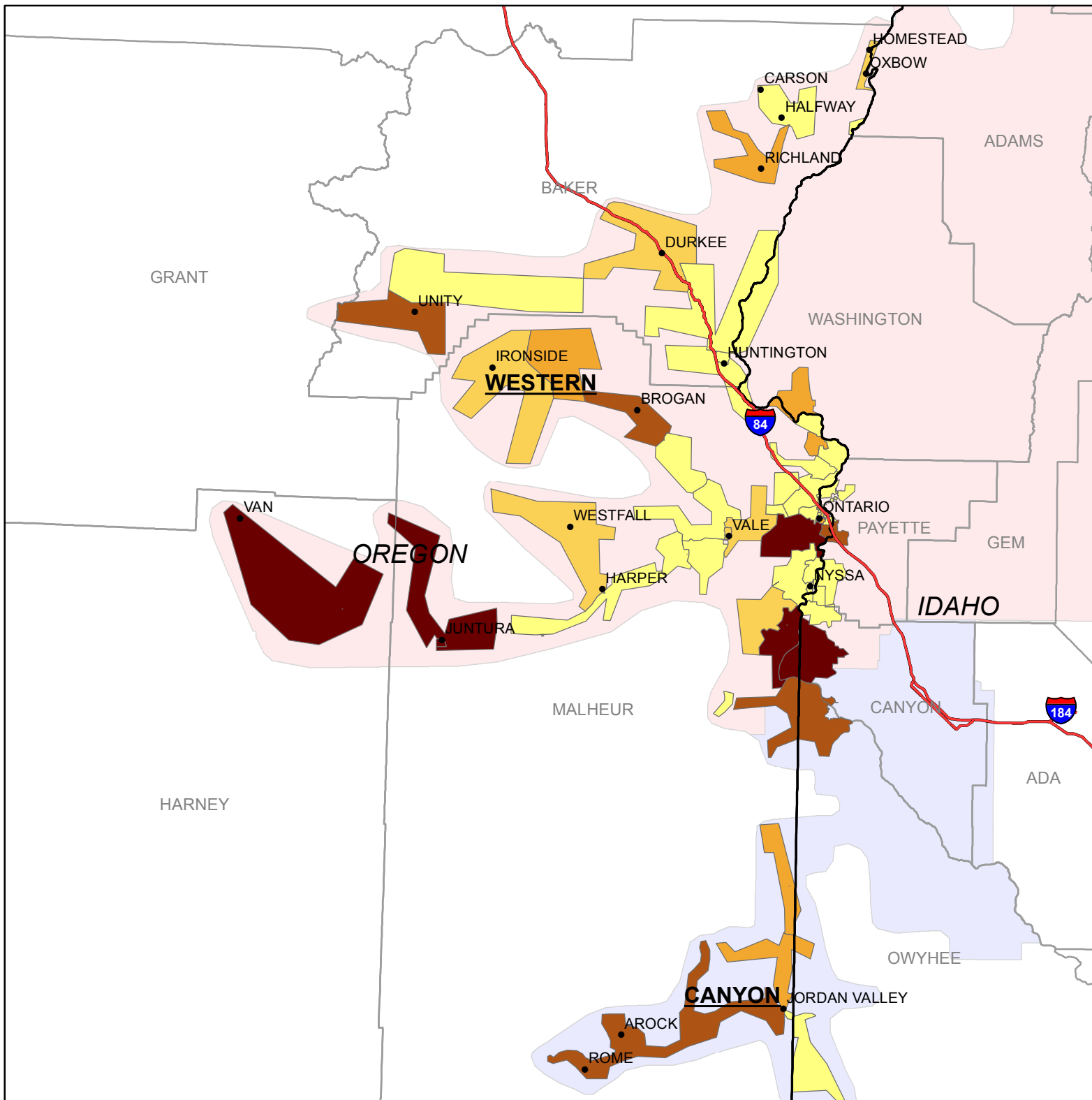
2018 MAIFIE With MED Oregon Area



1/9/2019



2018 MAIFIE Without MED Oregon Area



1/9/2019

