

e-FILING REPORT COVER SHEET

REPORT NAME: Electric Service Reliability Annual Report for 2017

COMPANY NAME: Idaho Power Company

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes

If yes, please submit only the cover letter electronically. Submit confidential information as directed OAR 860-001-0070 or the terms of an applicable protective order.

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
If Yes, enter docket number: RE 90

Key words:

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

- Corporate Analysis and Water Regulation
- Economic and Policy Analysis
- Electric and Natural Gas Revenue Requirements
- Electric Rates and Planning
- Natural Gas Rates and Planning
- Utility Safety, Reliability & Security
- Administrative Hearings Division
- Consumer Services Section

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- **Annual Fee Statement form and payment remittance or**
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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
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April 6, 2018

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 2017

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 2017.

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

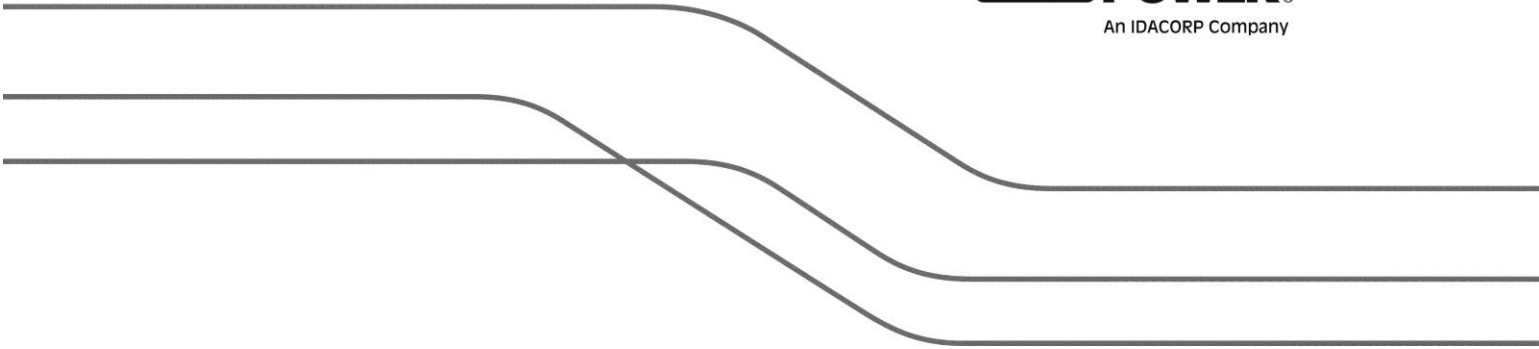
Very truly yours,

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

Lisa D. Nordstrom

LDN:kkt

Enclosure



**Idaho Power Company
2017 Electric Service
Reliability Annual Report**

May 2018
2018 Idaho Power

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DEFINITIONS

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

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 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 – 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.

OMS – Outage Management System.

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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EXECUTIVE SUMMARY

The information in this document presents Idaho Power Company's ("Idaho Power" or "Company") 2017 Electric Service Reliability Annual Report in accordance with 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 2017, Idaho Power served 18,747 customers from 62 distribution circuits served by 30 substations in the far central-eastern portion of Oregon. The composite performance of the circuits in 2017 included the following:

- 1,007 sustained (greater than five minutes) interruption events
- 23,114 customer interruptions
- 69,216 customer hours out
- SAIFI of 1.23
- SAIDI of 3.69 hours
- MAIFI_E of 3.82

Idaho Power used the calculation of a threshold for MEDs as defined in the 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 2013-2017. Idaho Power's 2017 threshold in Oregon for a major event day (T_{MED}) per the IEEE 1366 definition was a daily SAIDI of 16.49 minutes per customer. With the additional criterion of a daily CAIDI of 5 hours (300 minutes) per OAR 860-023-0161, Idaho Power experienced 1 major event day in its Oregon service territory in 2017. This event is summarized in the Appendix in accordance with OAR 860-023-0151 (2)(h). Idaho Power's calculated T_{MED} for 2018 in Oregon is 18.03 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 2016, Idaho Power's Oregon service territory SAIFI increased by 0.18 interruptions per customer from 1.05 in 2016 to 1.23 in 2017. Excluding major events, SAIFI increased by 0.13 from 1.05 in 2016 to 1.18 in 2017. The average duration of sustained outages also increased compared to last year; SAIDI increased by 0.82 hours per customer from 2.88 in 2016 to 3.69 in 2017. The increase was less dramatic when excluding major events, however, as 2017 saw an increase of 0.53 hours per customer over 2016 (2.88 to 3.40). Finally, MAIFI_E increased in 2017 compared to 2016 by 0.98 momentary interruption events per customer from 2.83 in 2016 to 3.82 in 2017.

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 OMS. Historical data from the OMS is stored and circuit performance is analyzed for the prioritization of capital projects to improve reliability. Idaho Power did replace its OMS in January 2017. This project included bringing in historical data from the old OMS into the new OMS and continuing to collect the necessary outage data in accordance with OAR 860-023-0101. The change from the old OMS to the new OMS did not dramatically change how outage data is reported and analyzed. Idaho Power also continues to utilize data from its 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.

SYSTEM SAIDI, SAIFI AND MAIFI_E

System SAIDI

Year	2013	2014	2015	2016	2017
SAIDI	6.99	3.43	6.18	2.88	3.69
SAIDI MedEx	4.62	3.16	3.60	2.88	3.40

Table 1 Five Years of System SAIDI

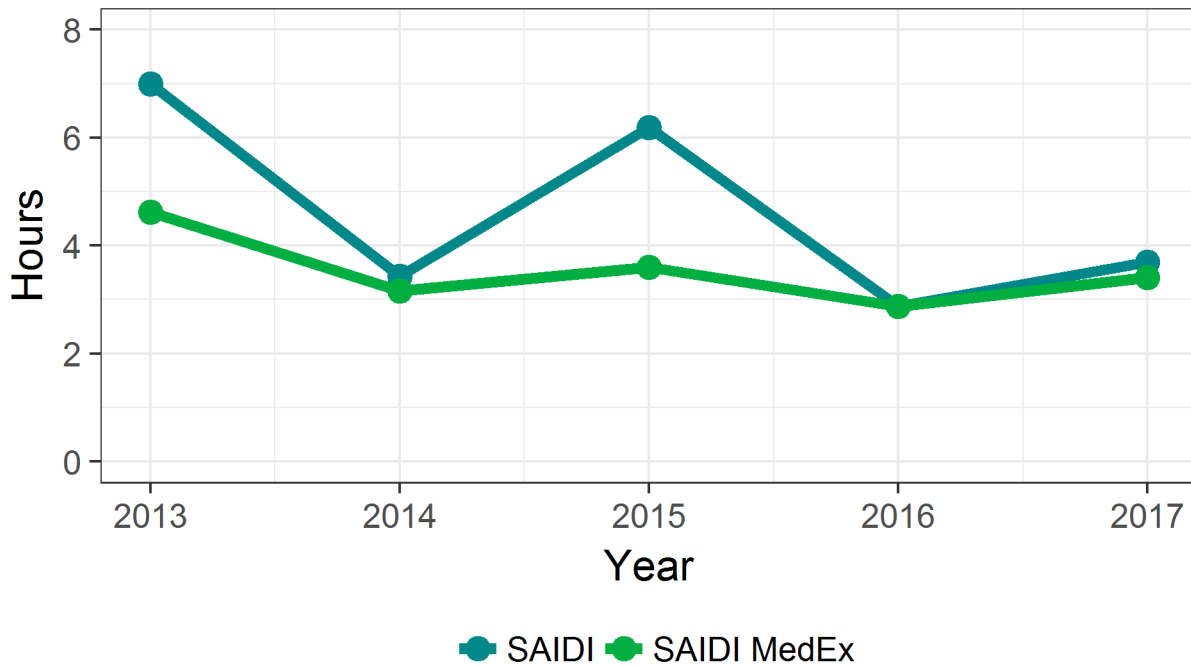


Figure 1 Five Years of System SAIDI

System SAIFI

Year	2013	2014	2015	2016	2017
SAIFI	2.41	1.63	1.95	1.05	1.23
SAIFI MedEx	2.01	1.58	1.74	1.05	1.18

Table 2 Five Years of System SAIFI

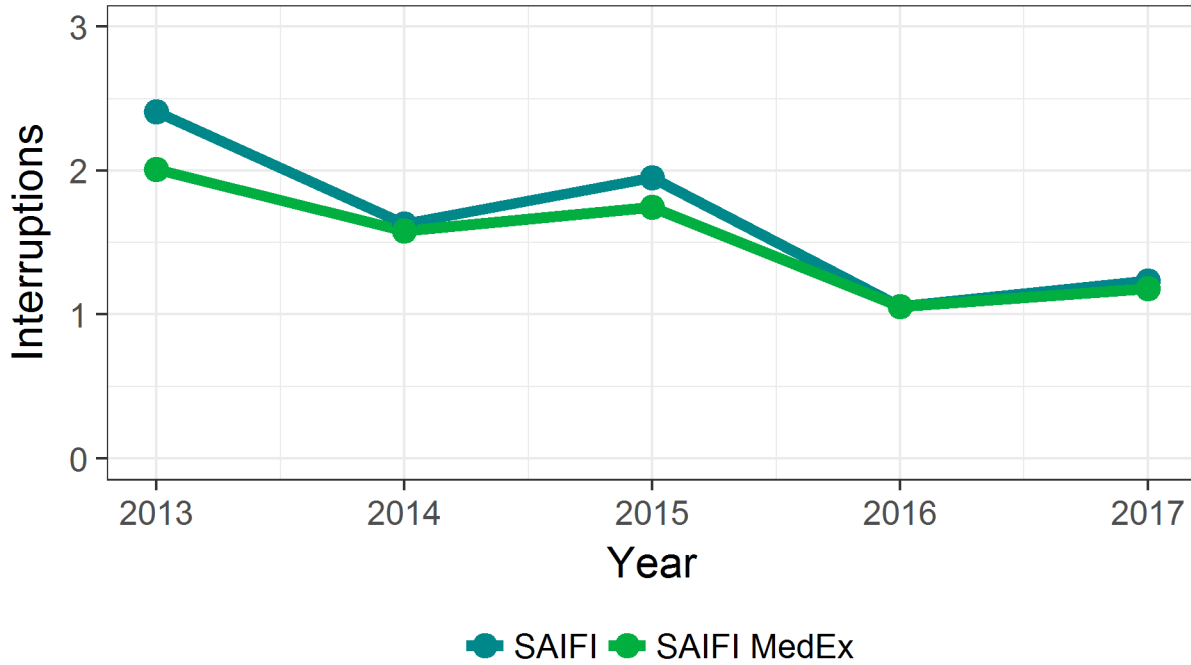


Figure 2 Five Years of System SAIFI

System MAIFI_E

Year	2013	2014	2015	2016	2017
MAIFI _E	3.80	2.48	3.86	2.83	3.82
MAIFI _E MedEx	3.54	2.46	3.72	2.83	3.77

Table 3 Five Years of System MAIFI_E

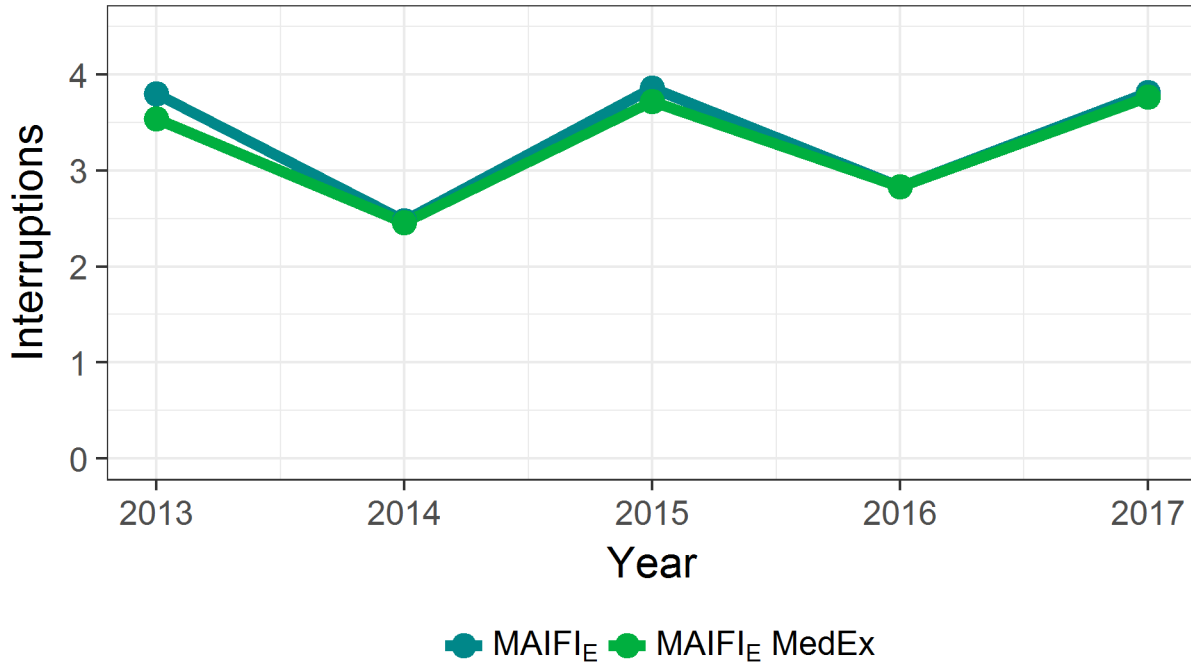


Figure 3 Five Years of System MAIFI_E

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Sustained Interruption Event Causes

Cause	Number of Sustained Interruption Events					Percent of Total Sustained Interruption Events				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Distribution – Equipment	214	140	151	163	277	24.3%	17.3%	20.2%	23.7%	27.5%
Distribution – Lightning	92	20	24	14	17	10.5%	2.5%	3.2%	2.0%	1.7%
Distribution – Other	37	36	40	41	63	4.2%	4.5%	5.3%	6.0%	6.3%
Distribution – Planned	187	237	140	148	114	21.3%	29.4%	18.7%	21.5%	11.3%
Distribution – Public	42	46	43	66	77	4.8%	5.7%	5.7%	9.6%	7.6%
Distribution – Unknown	57	63	90	67	97	6.5%	7.8%	12.0%	9.8%	9.6%
Distribution – Vegetation	63	47	44	28	118	7.2%	5.8%	5.9%	4.1%	11.7%
Distribution – Weather (Non-Lightning)	9	46	40	4	70	1.0%	5.7%	5.3%	0.6%	7.0%
Distribution – Wildlife	66	92	92	111	127	7.5%	11.4%	12.3%	16.2%	12.6%
Loss of Supply – Substation	17	35	23	8	11	1.9%	4.3%	3.1%	1.2%	1.1%
Loss of Supply – Transmission	95	45	61	37	36	10.8%	5.6%	8.2%	5.4%	3.6%
Total	879	807	748	687	1,007	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4 Five Years of Sustained Interruption Event Causes

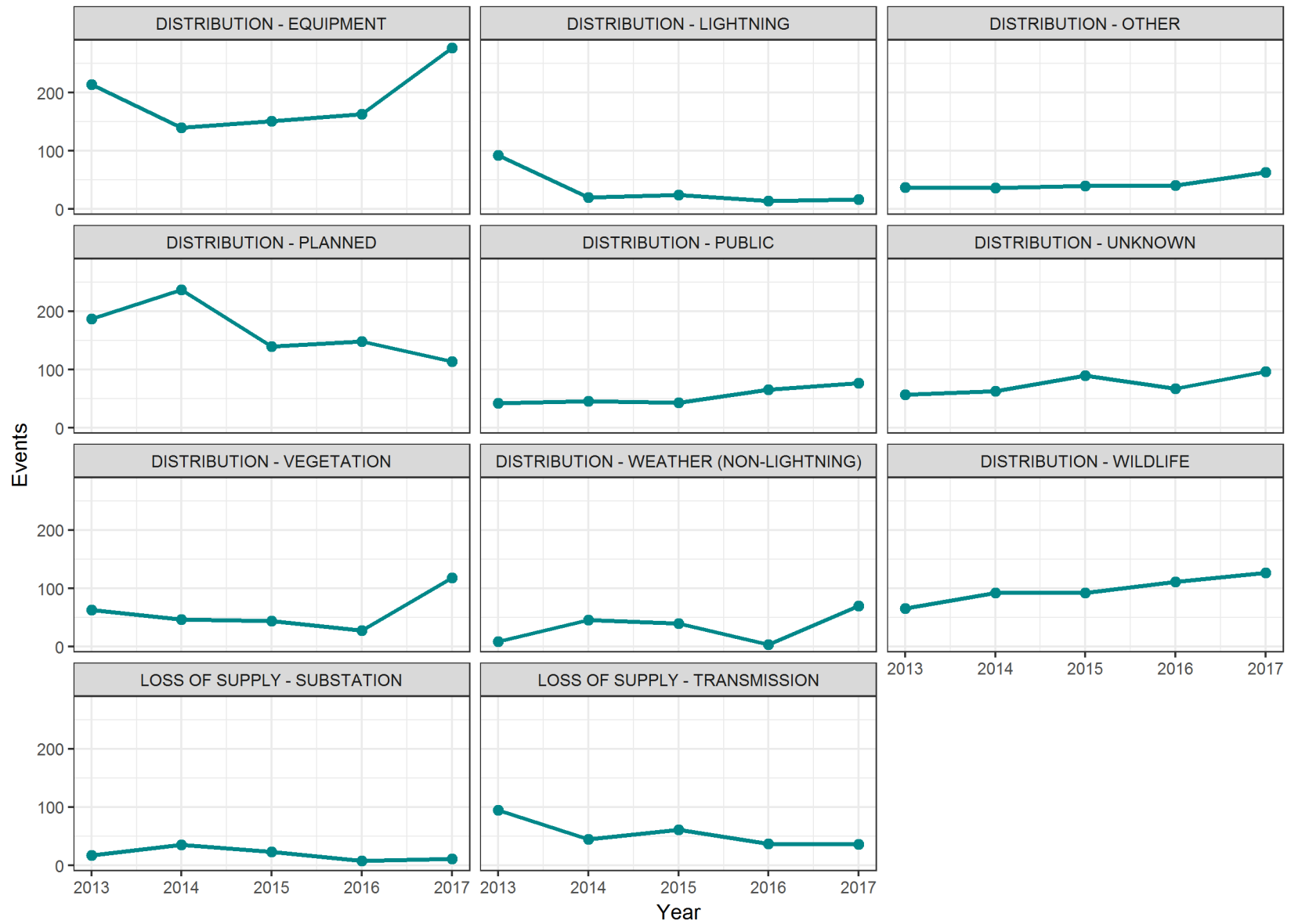


Figure 4 Five Years of Sustained Interruption Events by Cause

Cause	Events	Hours Out	Event Ranking	Hours Out Ranking
Distribution – Equipment	277	1,302	1	1
Distribution – Lightning	17	77	10	10
Distribution – Other	63	162	8	8
Distribution – Planned	114	1,174	4	2
Distribution – Public	77	178	6	7
Distribution – Unknown	97	220	5	6
Distribution – Vegetation	118	514	3	3
Distribution – Weather (non-Lightning)	70	407	7	5
Distribution – Wildlife	127	510	2	4
Loss of Supply – Substation	11	21	11	11
Loss of Supply – Transmission	36	123	9	9
Total	1,007	4,688		

Table 5 2017 Sustained Interruption Event Cause Ranking

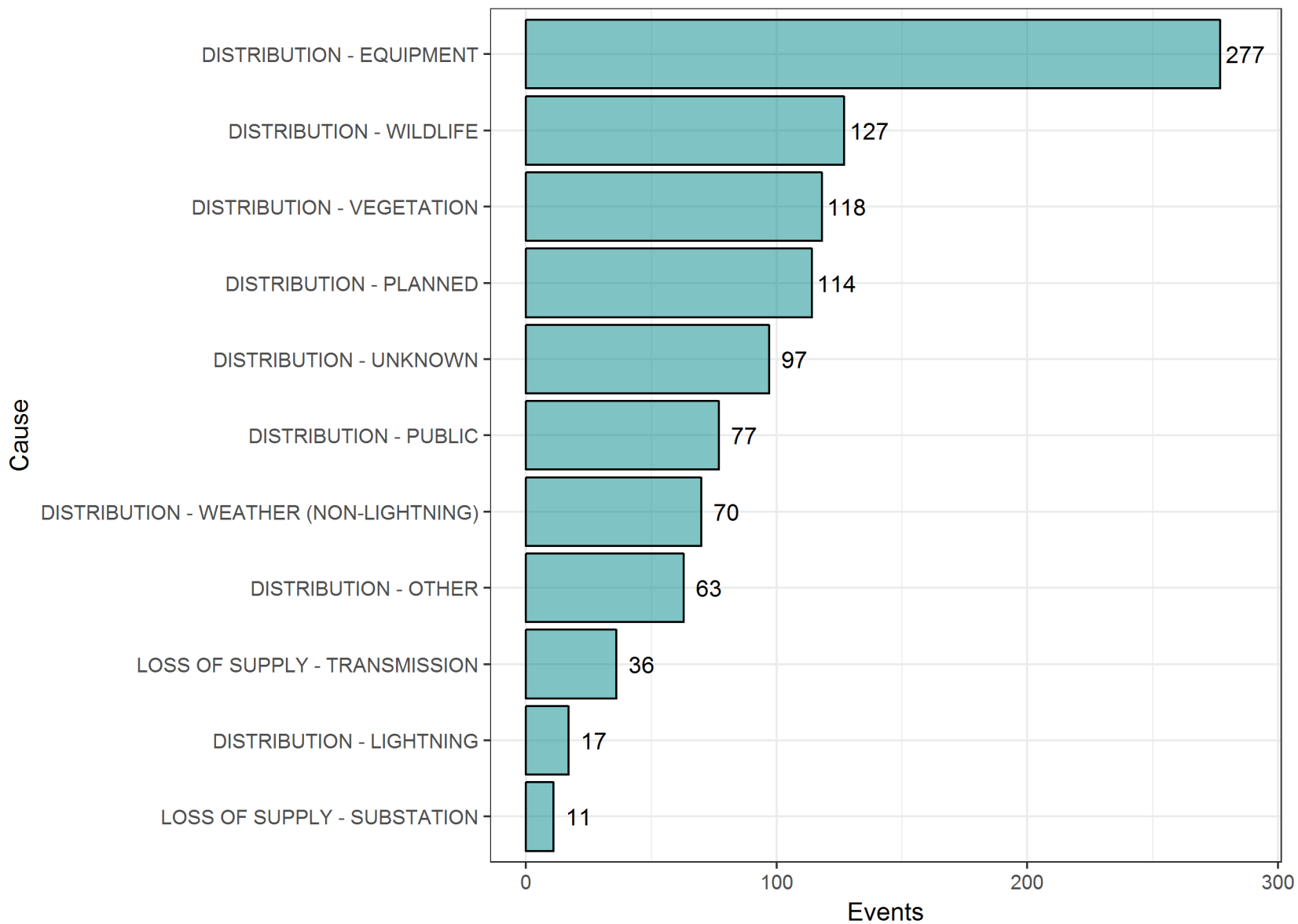


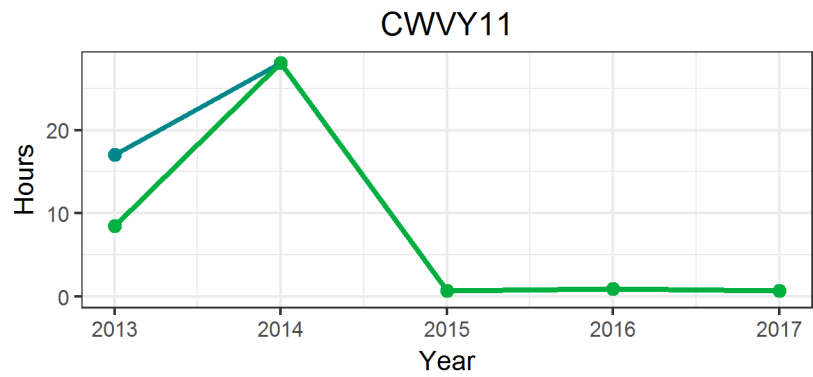
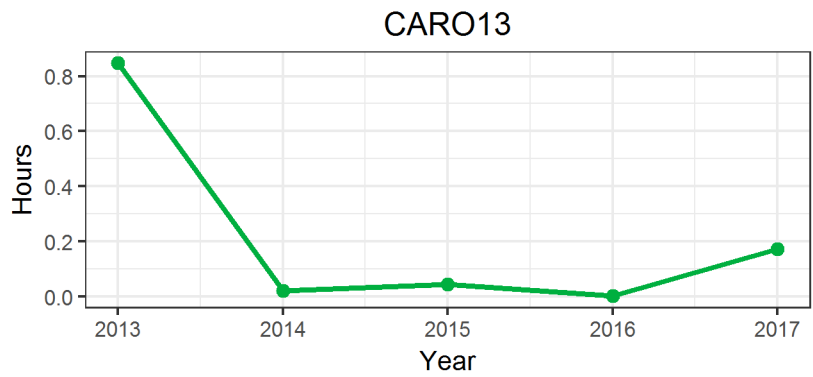
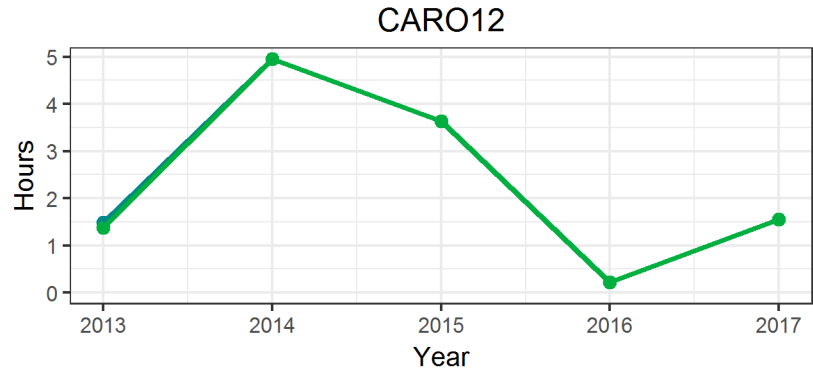
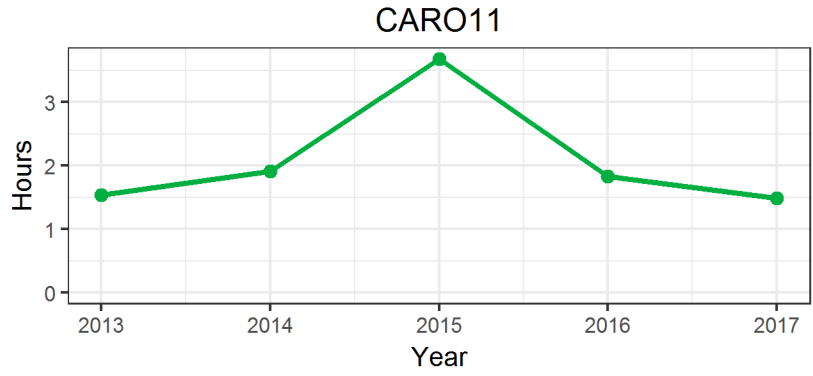
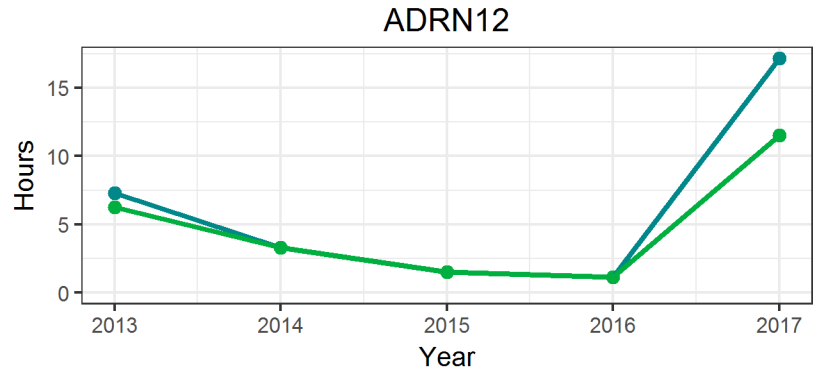
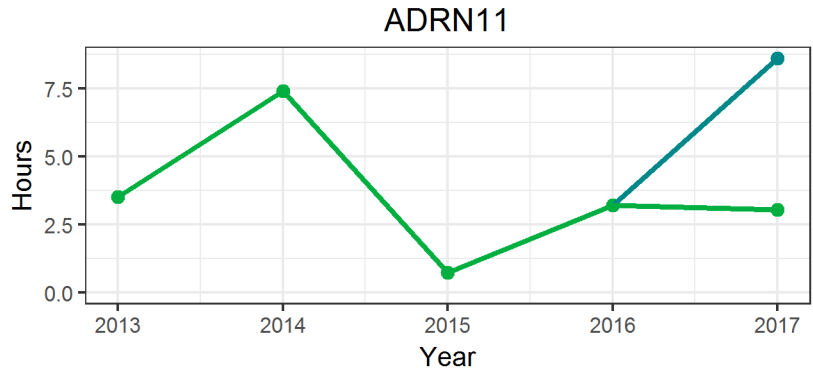
Figure 5 2017 Ranking of Sustained Interruption Event Causes

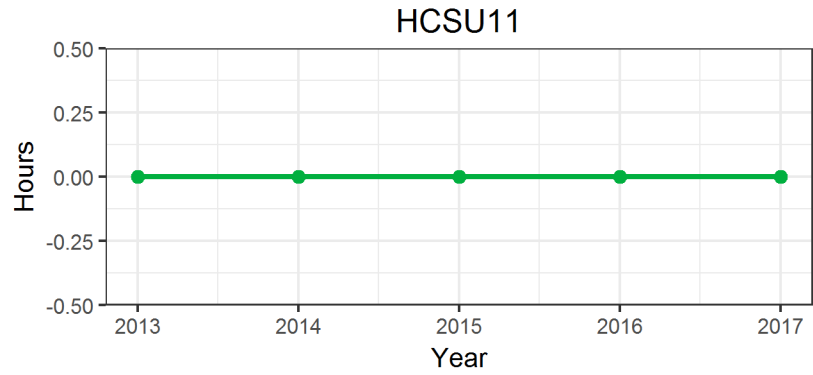
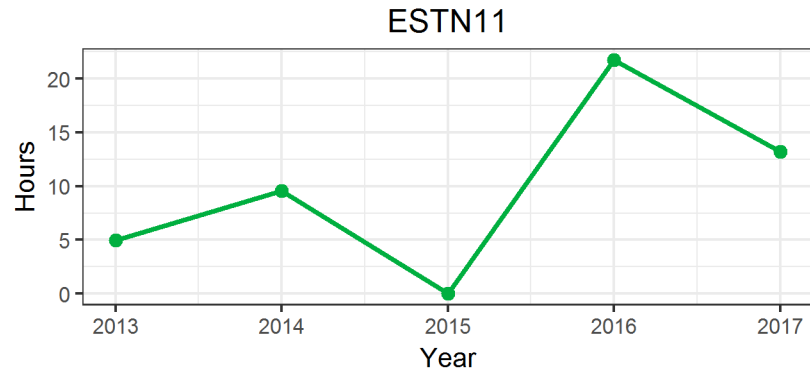
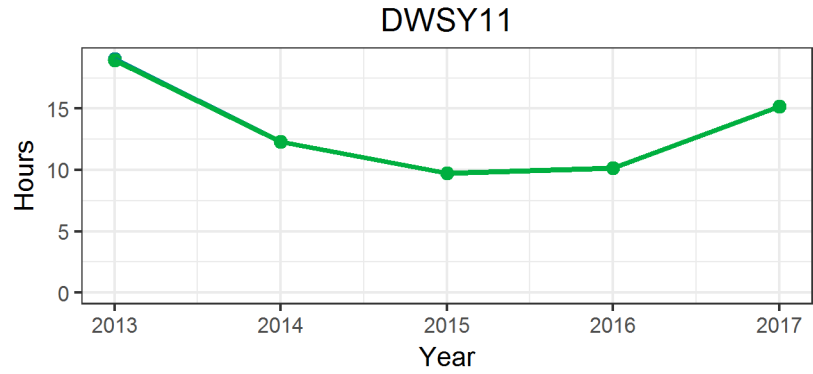
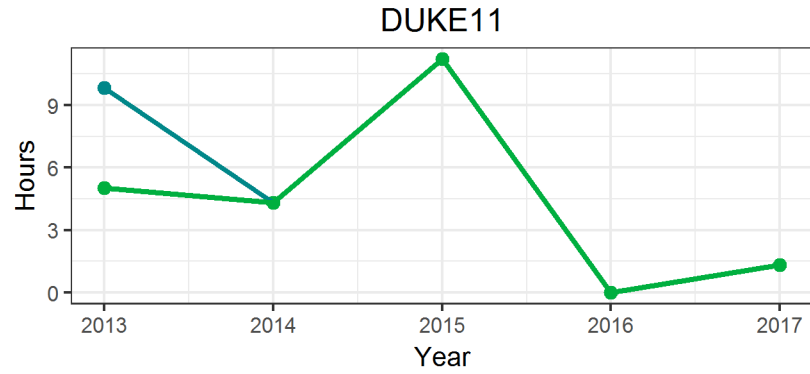
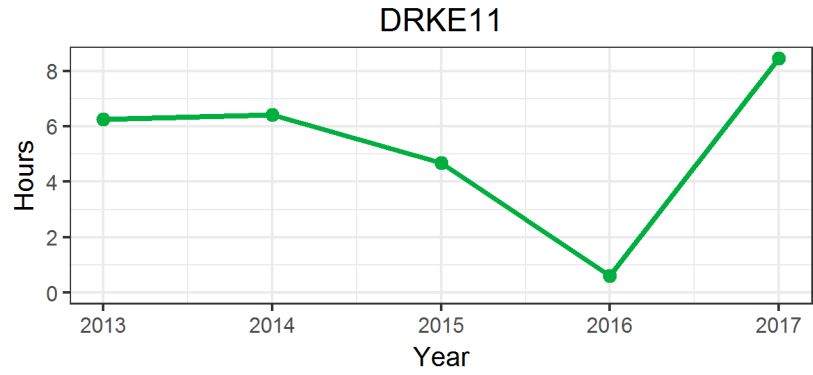
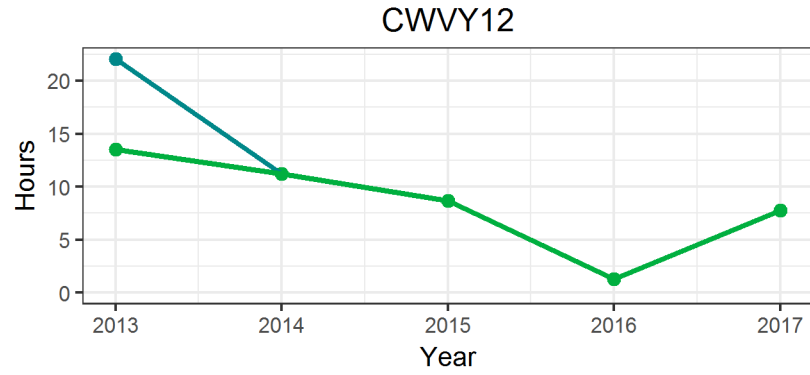
CIRCUIT SAIDI, SAIFI AND MAIFI_E

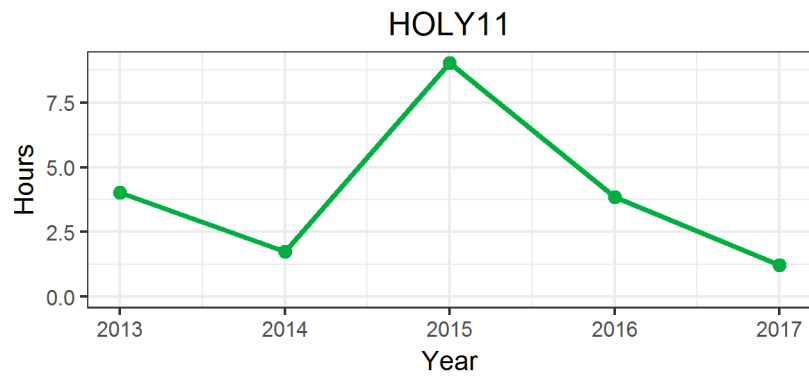
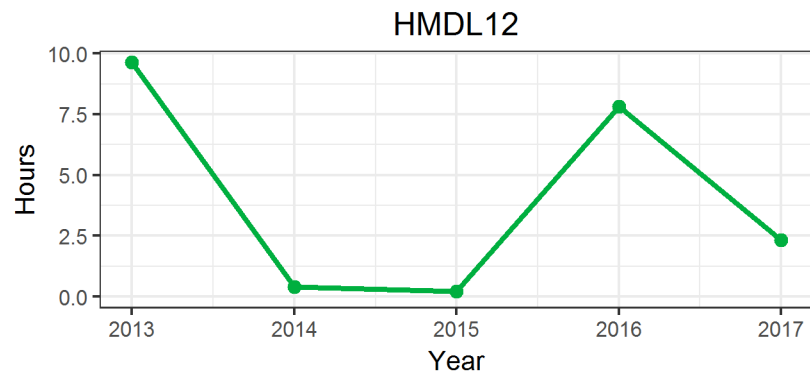
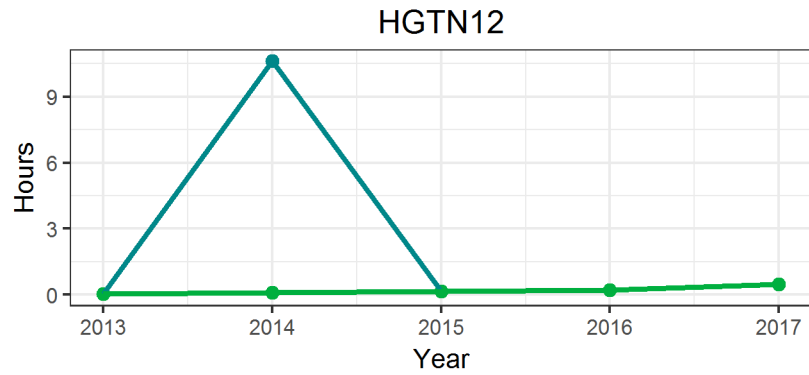
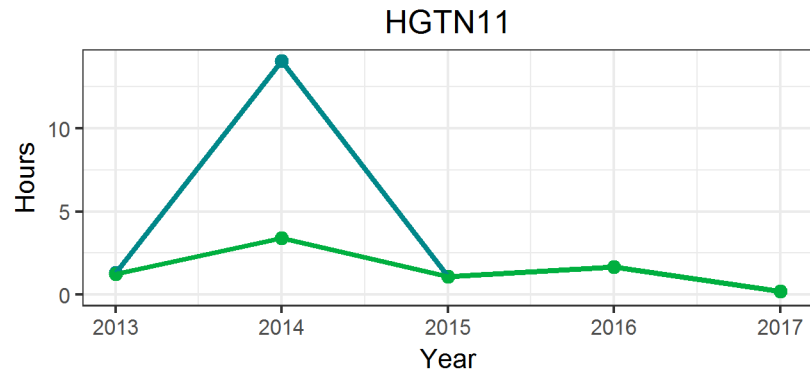
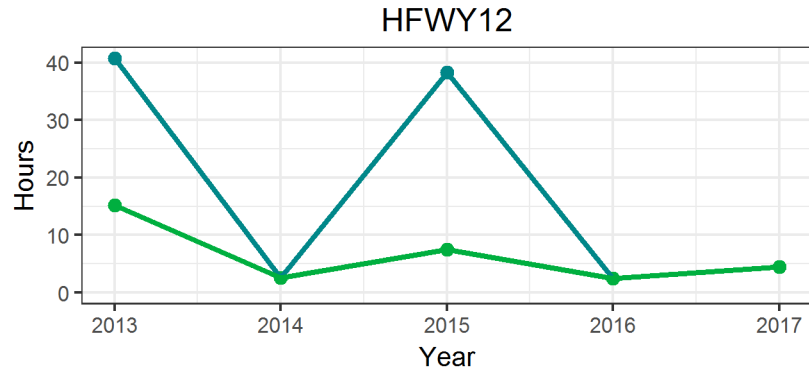
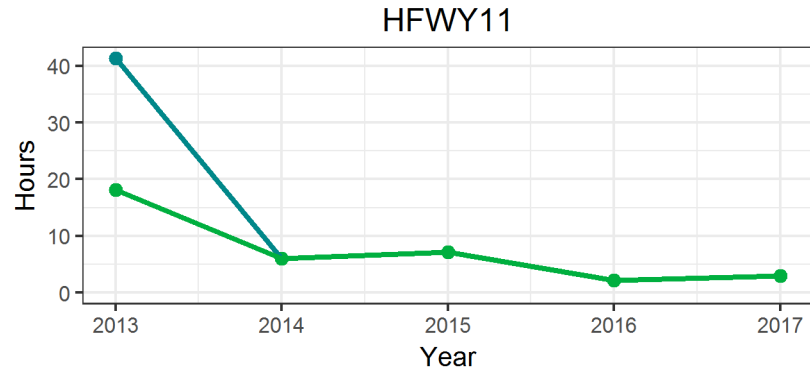
Five Years of Circuit SAIDI

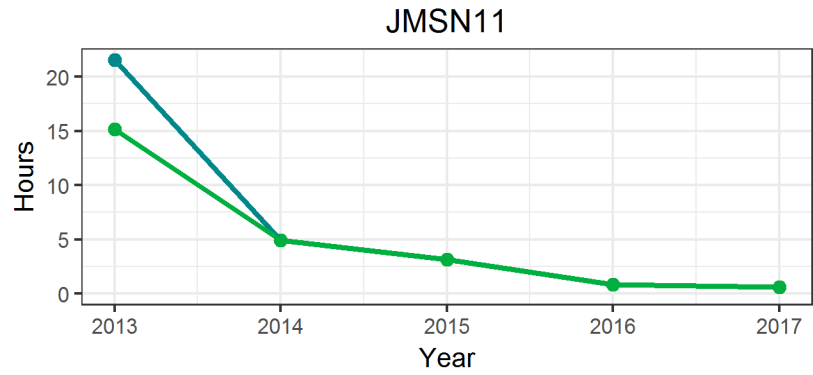
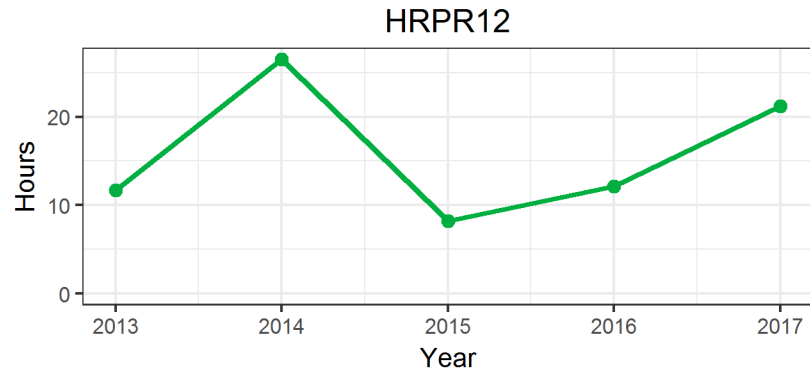
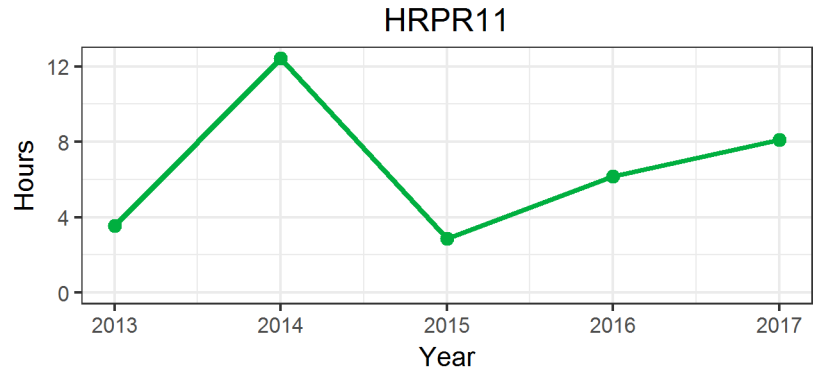
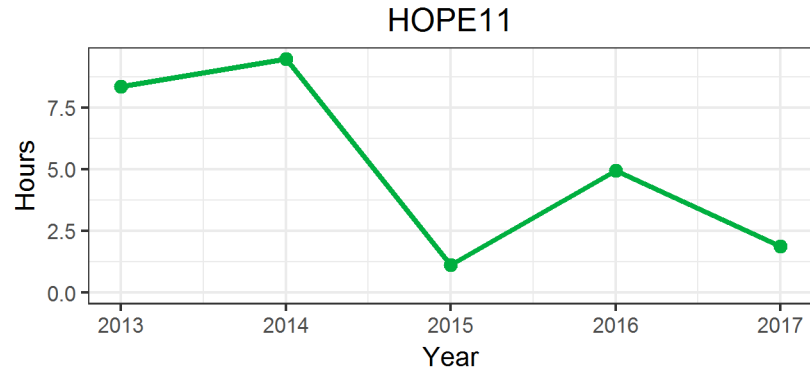
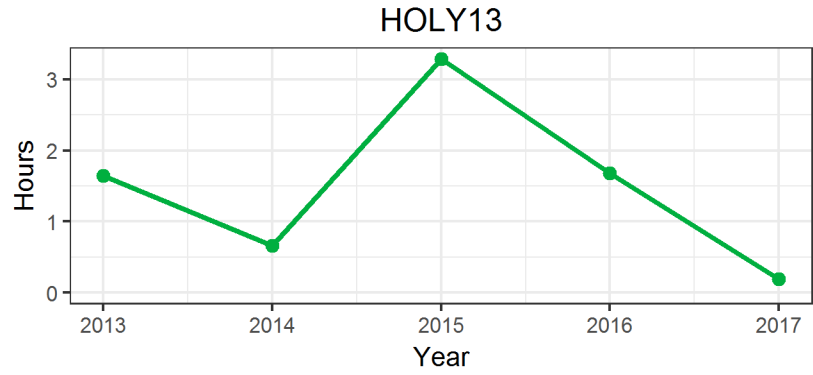
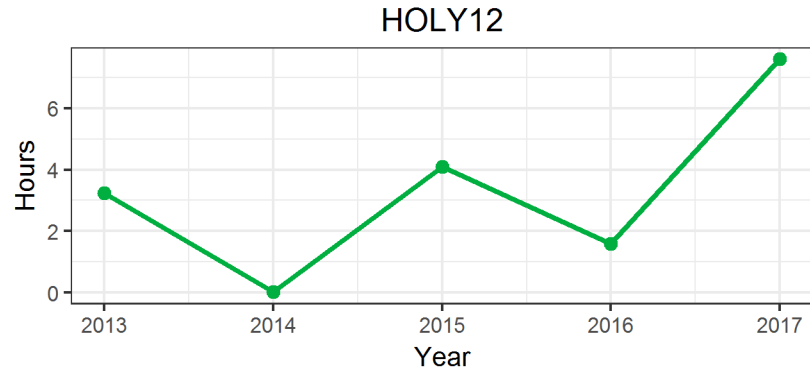
Circuit	2013	2014	2015	2016	2017	2017 MedEx
ADRN11	3.52	7.40	0.73	3.22	8.60	3.03
ADRN12	7.31	3.30	1.52	1.12	17.14	11.51
CARO11	1.54	1.91	3.67	1.83	1.49	1.49
CARO12	1.48	4.95	3.63	0.23	1.56	1.56
CARO13	0.85	0.02	0.05	0.00	0.17	0.17
CWVY11	17.05	28.03	0.70	0.95	0.74	0.74
CWVY12	22.04	11.21	8.68	1.26	7.78	7.78
DRKE11	6.25	6.42	4.68	0.61	8.44	8.44
DUKE11	9.82	4.31	11.21	0.00	1.34	1.34
DWSY11	19.03	12.29	9.74	10.16	15.18	15.18
ESTN11	4.99	9.55	0.00	21.72	13.21	13.21
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	41.28	6.02	7.17	2.14	2.94	2.94
HFVY12	40.71	2.60	38.25	2.42	4.50	4.50
HGTN11	1.33	14.05	1.08	1.66	0.21	0.21
HGTN12	0.03	10.62	0.14	0.21	0.47	0.47
HMDL12	9.62	0.40	0.21	7.82	2.32	2.32
HOLY11	4.02	1.73	9.03	3.85	1.23	1.23
HOLY12	3.25	0.02	4.09	1.58	7.60	7.60
HOLY13	1.64	0.66	3.29	1.68	0.19	0.19
HOPE11	8.34	9.46	1.13	4.93	1.87	1.87
HRPR11	3.53	12.42	2.88	6.18	8.10	8.10
HRPR12	11.67	26.47	8.20	12.11	21.23	21.23
JMSN11	21.53	4.95	3.17	0.82	0.60	0.60
JMSN12	17.00	19.63	4.07	1.35	2.07	2.07
JNTA11	13.45	14.74	5.92	8.95	6.65	6.65
JNTA12	13.97	18.42	11.28	12.95	7.56	7.56
JNVY11	13.73	3.83	67.85	35.11	11.30	11.30
JNVY12	15.21	2.05	71.83	7.75	10.75	10.75
JNVY31	19.33	6.24	86.67	24.13	14.50	14.50
LIME11	0.38	10.02	5.65	3.84	27.62	27.62
MRBT41	0.34	4.82	0.29	0.67	11.96	11.96
MRBT42	0.00	4.62	0.40	0.29	1.54	1.54
NYSA11	2.82	2.39	2.59	0.89	0.37	0.37
NYSA12	8.13	2.58	1.31	13.97	6.95	6.95
NYSA13	1.41	4.01	0.23	6.68	0.27	0.27
NYSA14	3.77	3.72	0.11	3.65	0.12	0.12
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	1.35	0.29	0.26	0.94	1.12	1.12
OIDA12	3.07	1.47	1.92	0.70	2.80	2.80
ONTO14	8.26	0.00	0.06	0.42	0.54	0.54
ONTO18	0.19	0.05	0.26	0.21	0.12	0.12
ONTO19	0.42	0.20	3.15	0.40	0.69	0.69
ONTO20	1.63	0.68	0.23	1.05	0.64	0.64
ONTO23	0.68	0.00	0.11	0.52	4.07	4.07
ONTO24	1.25	2.75	3.46	0.46	5.23	5.23
ONTO25	0.15	0.03	0.25	0.13	0.37	0.37
OYDM11	0.00	0.00	0.00	0.00	3.48	3.48
PNCK11	9.06	1.47	7.45	12.71	0.26	0.26
PNCK12	4.97	0.00	5.63	6.73	3.17	3.17
PRMA12	7.59	14.63	3.45	13.68	7.22	4.65
PRMA42	8.16	8.39	4.75	3.59	12.84	9.08
RKVL11	15.12	7.77	129.17	9.57	4.61	4.61
UNTY11	28.17	8.33	2.15	34.95	27.58	27.58
UNTY12	21.64	2.81	7.45	3.44	17.21	17.21
VALE11	3.23	2.53	3.82	0.17	1.09	1.09
VALE12	0.00	0.00	0.00	0.00	1.07	1.07
VALE13	5.21	3.64	1.06	0.52	3.68	3.68
VALE14	0.94	4.65	13.76	0.11	2.93	2.93
VALE15	0.33	2.42	3.49	4.94	1.82	1.82
WESR13	3.57	0.24	0.93	0.29	3.21	3.21
WESR14	0.57	7.20	2.81	0.85	12.55	12.55

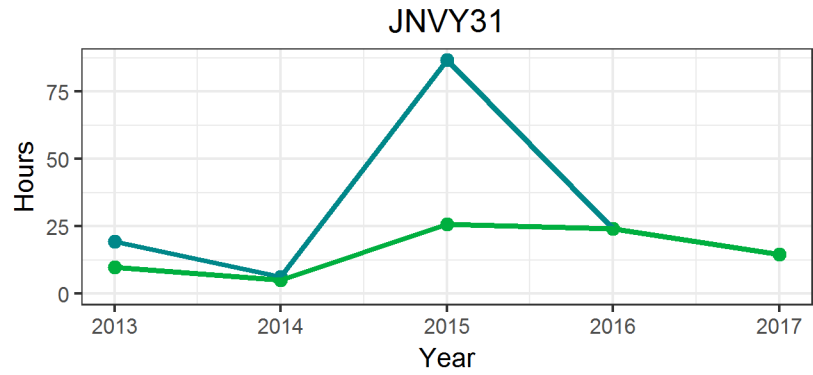
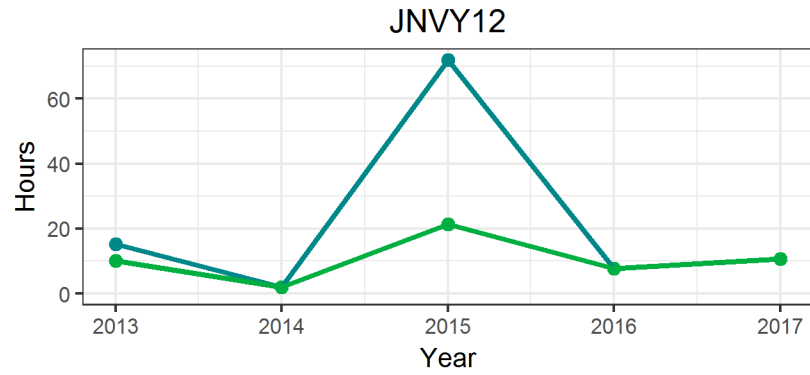
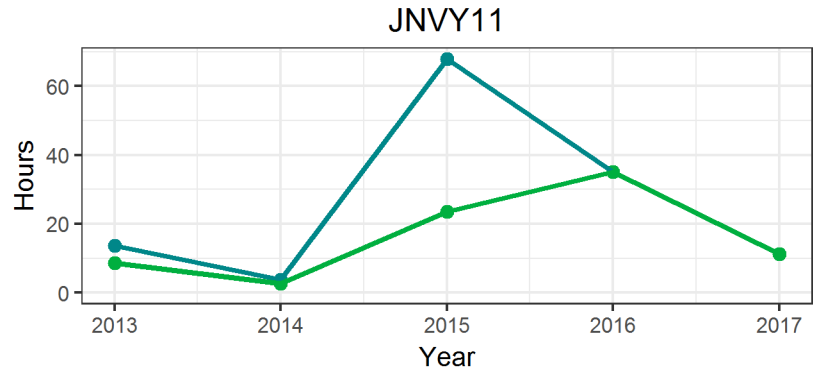
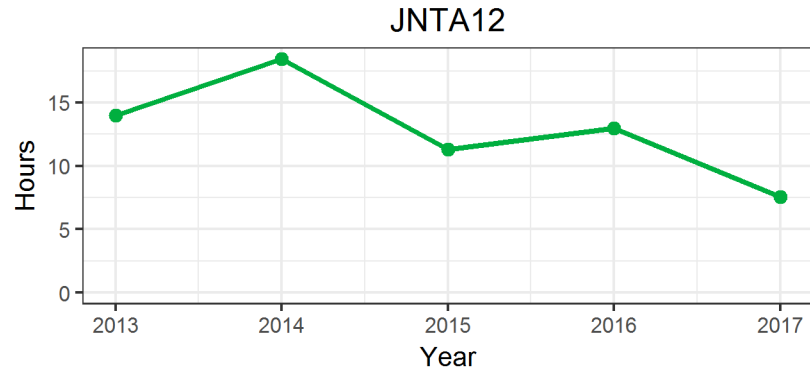
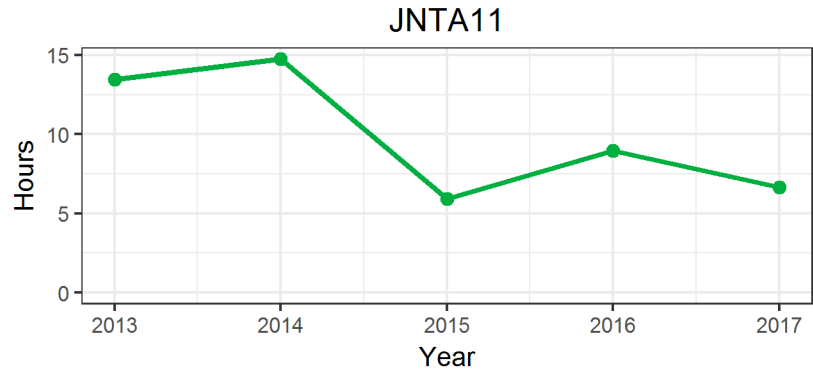
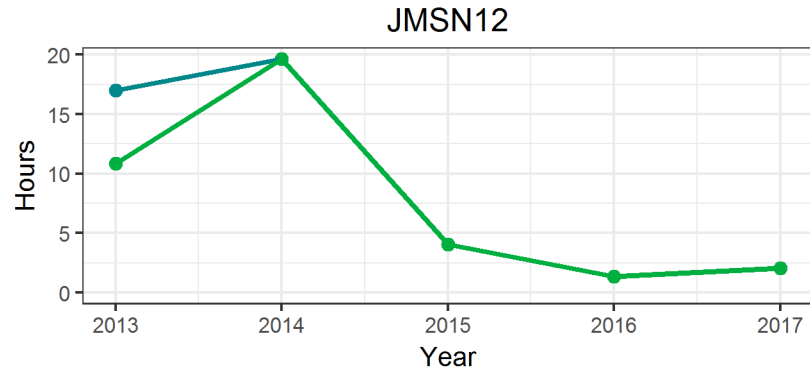
Table 6 Five Years of Circuit SAIDI

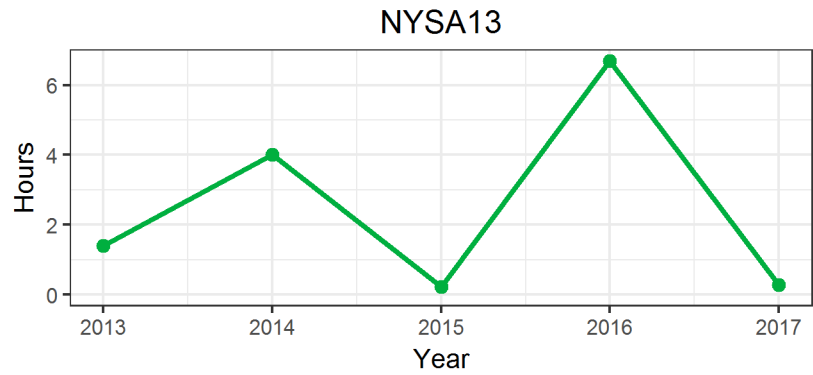
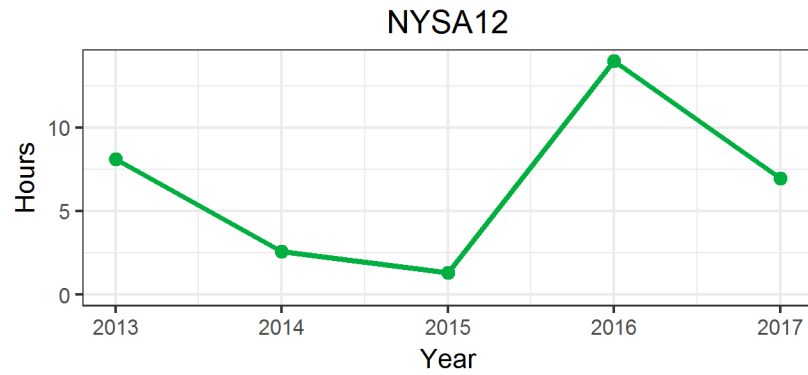
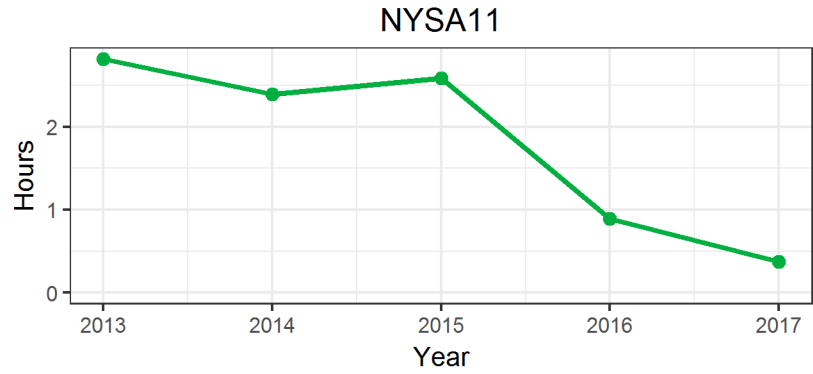
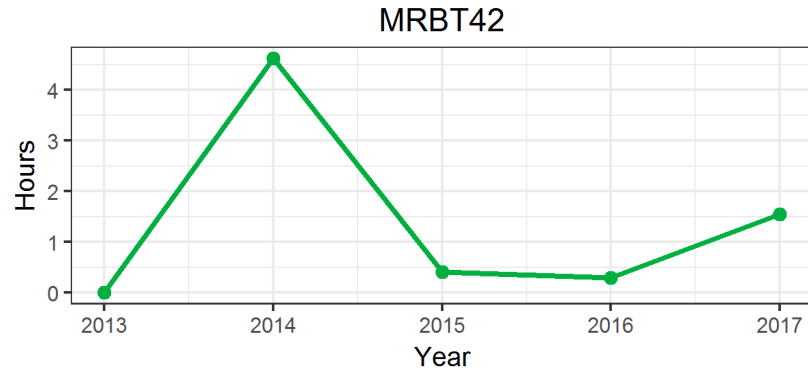
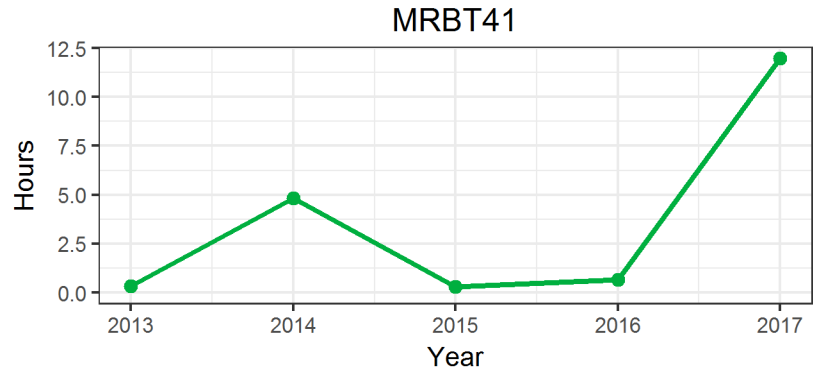
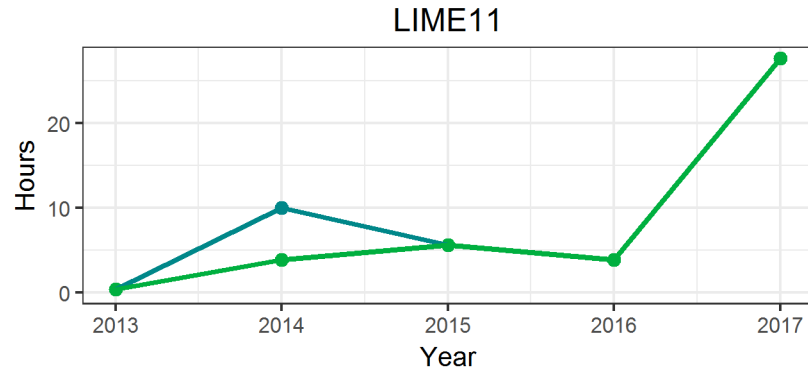


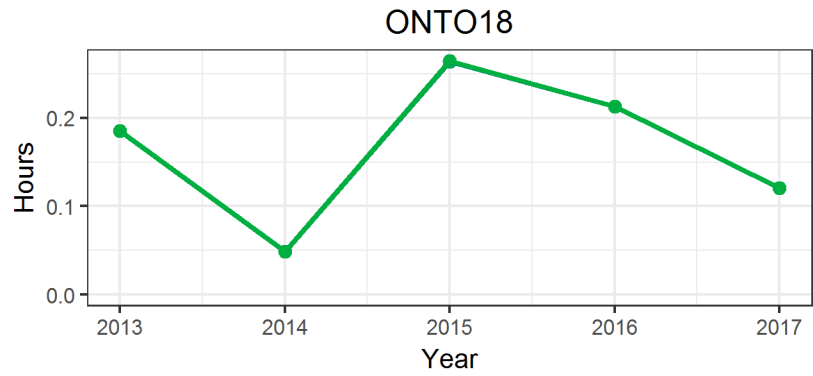
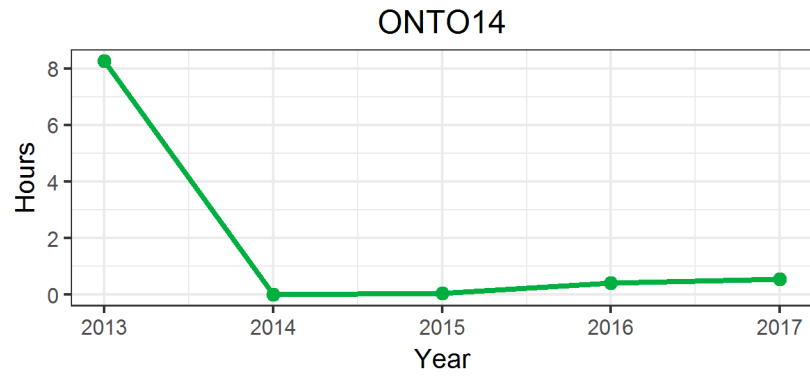
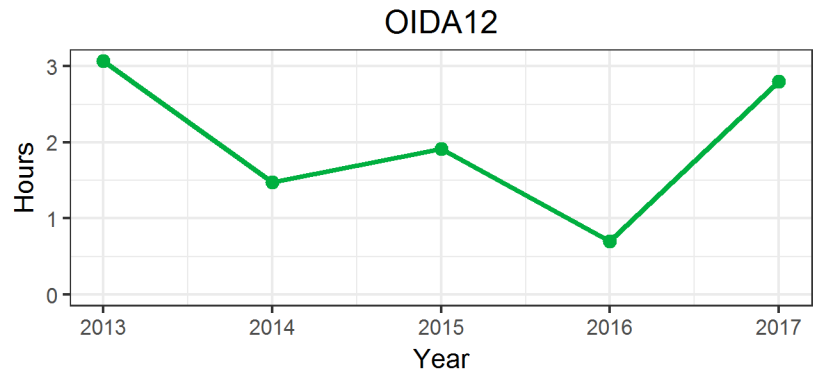
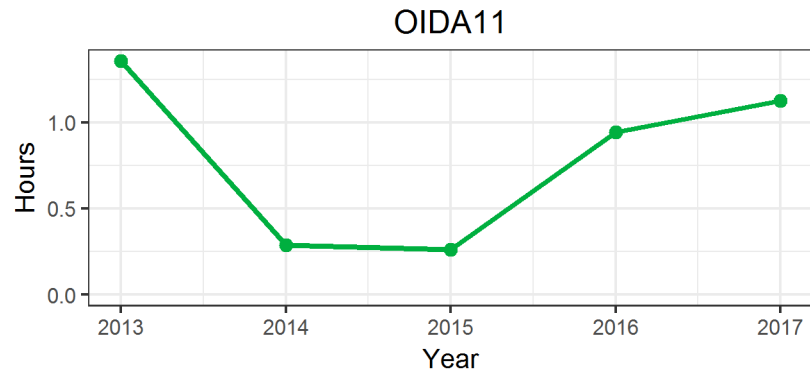
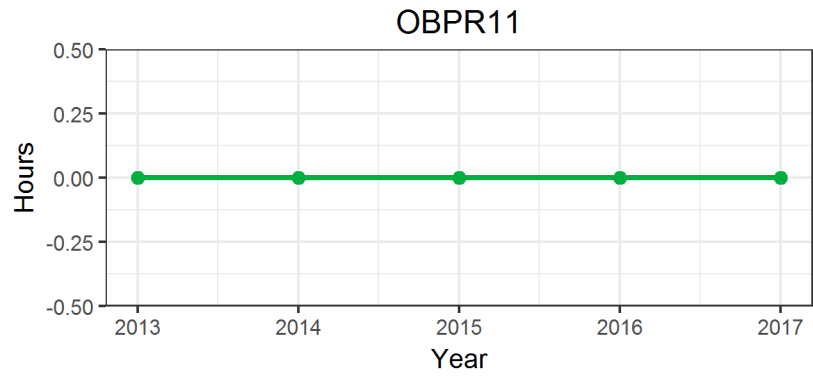
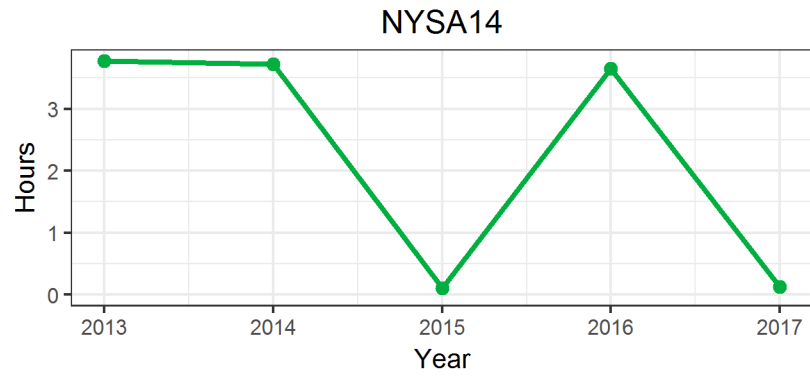


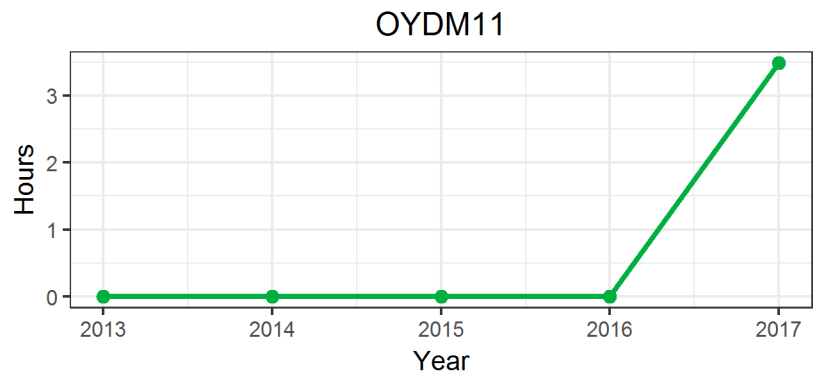
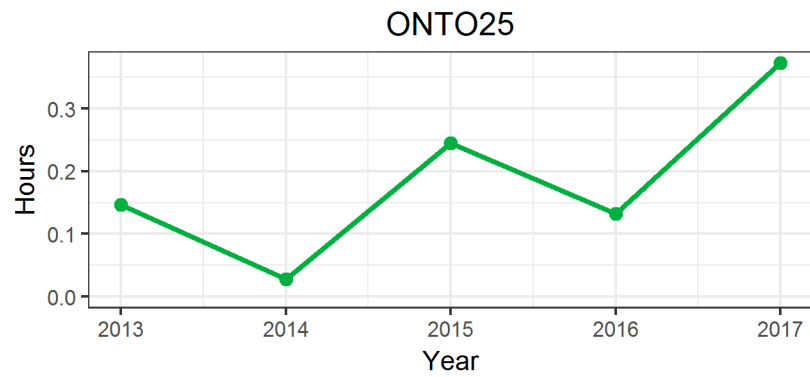
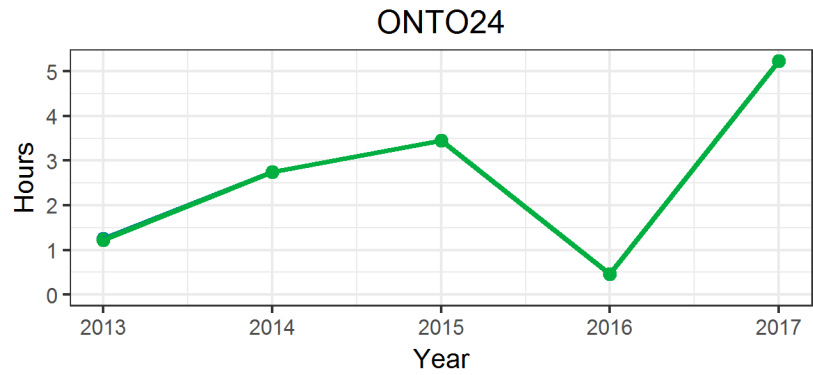
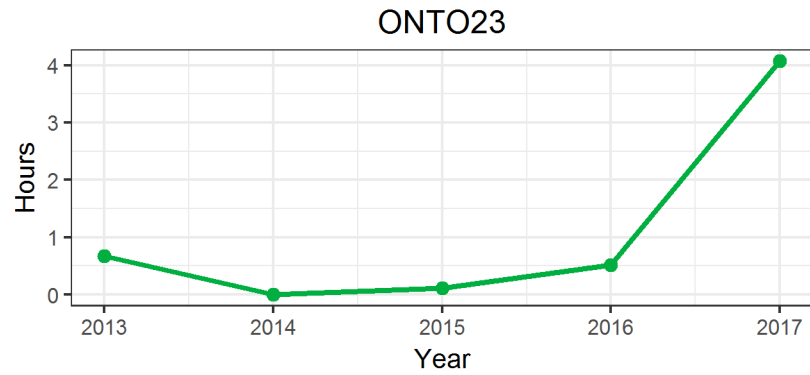
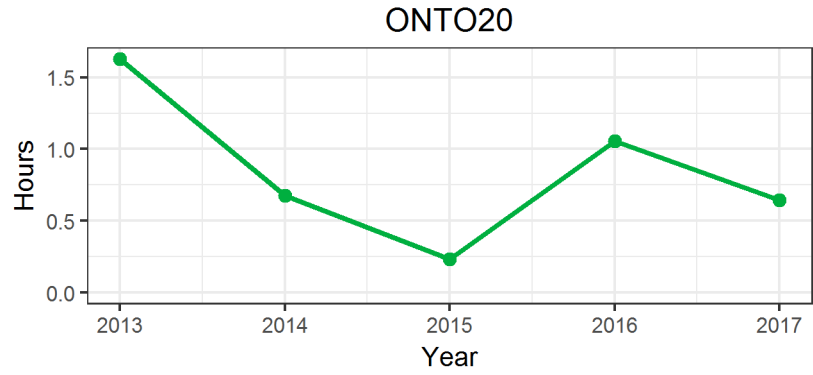
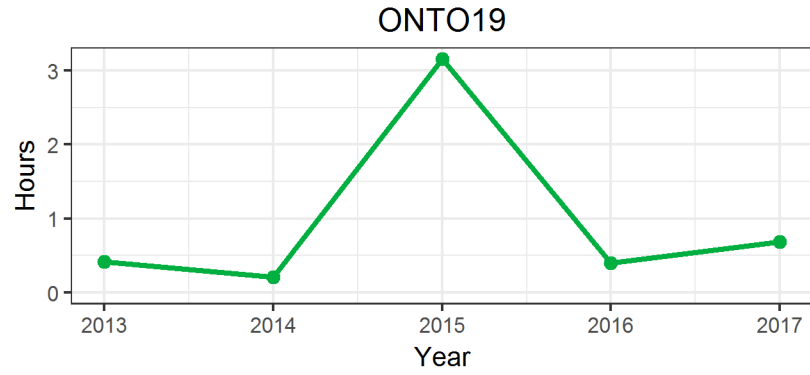


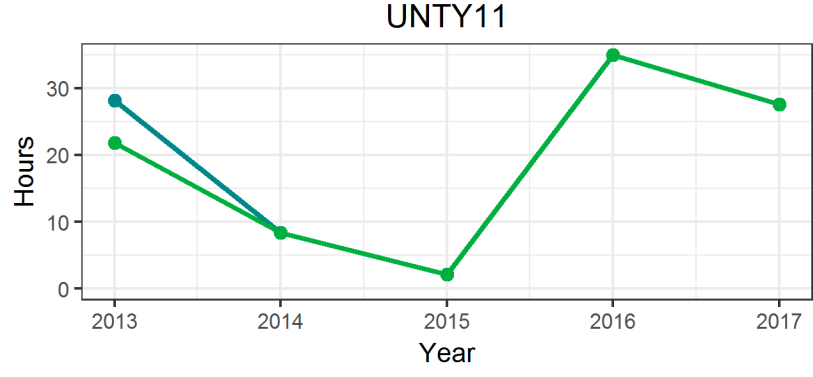
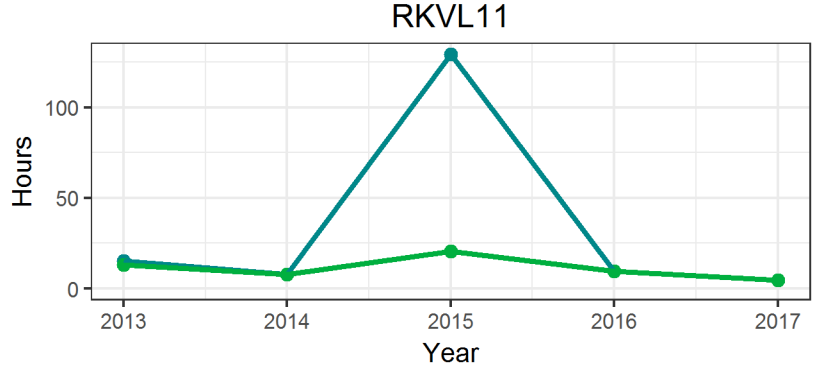
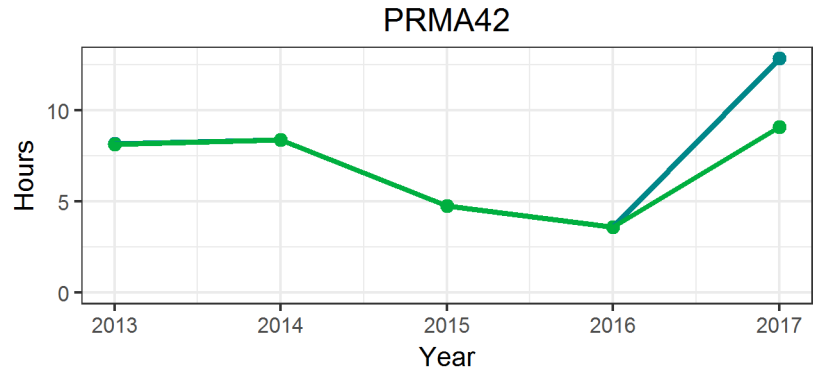
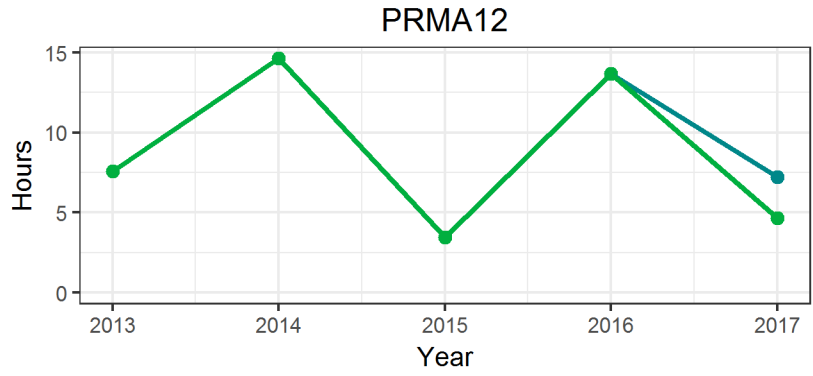
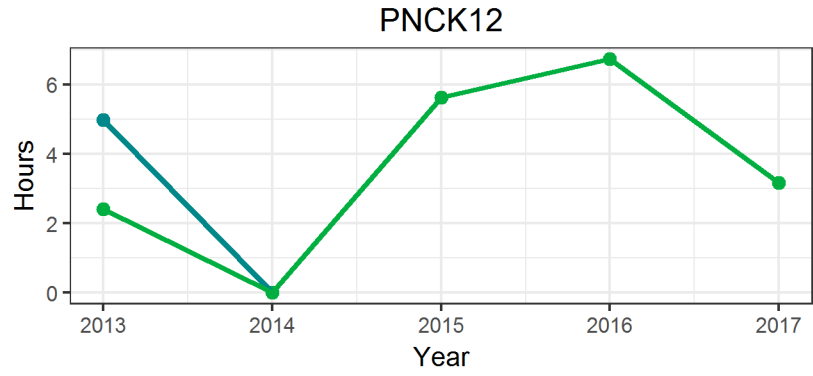
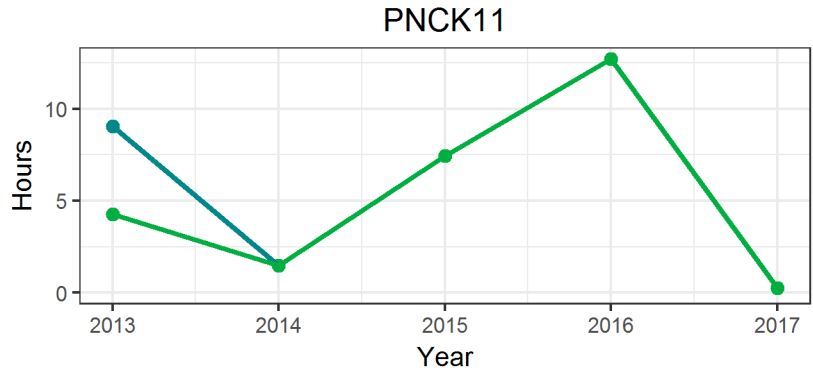


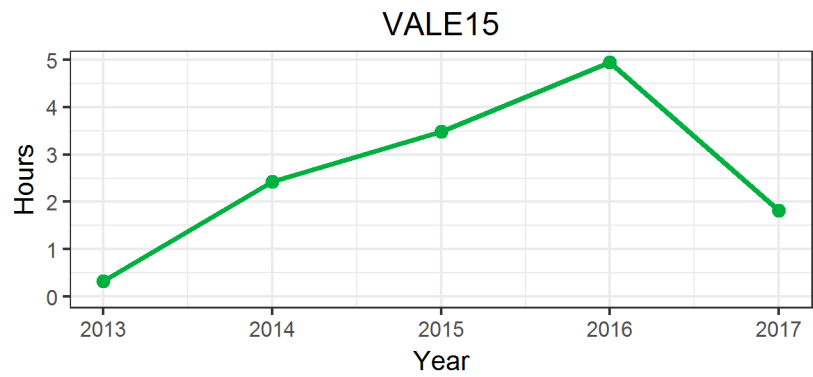
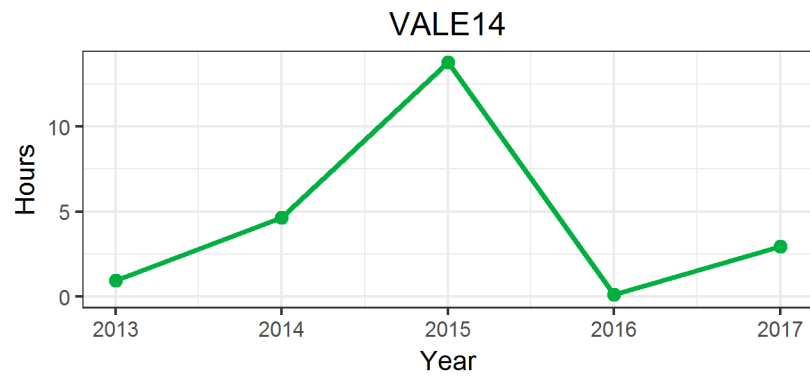
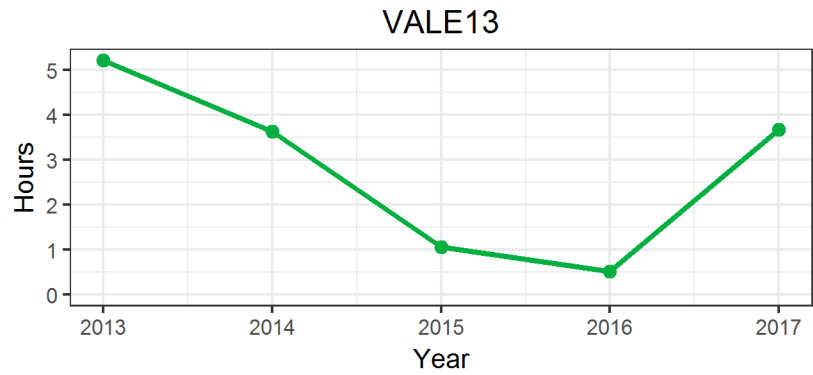
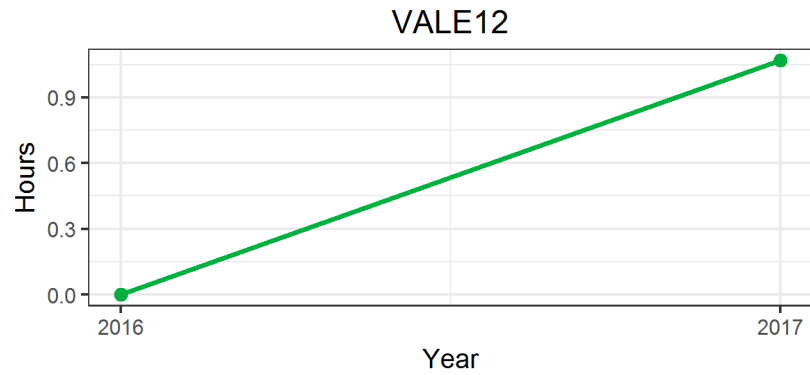
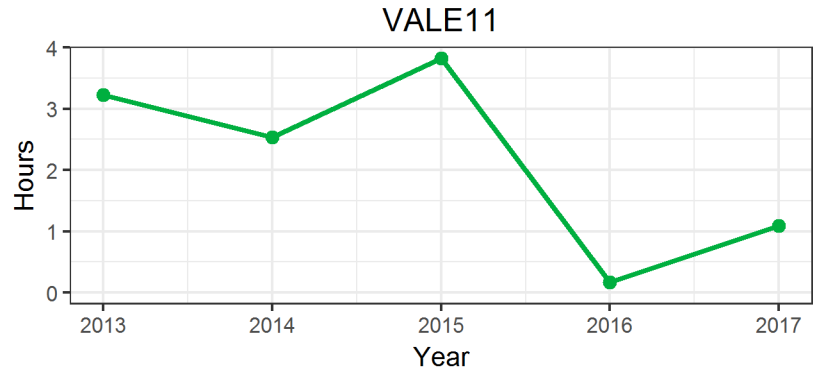
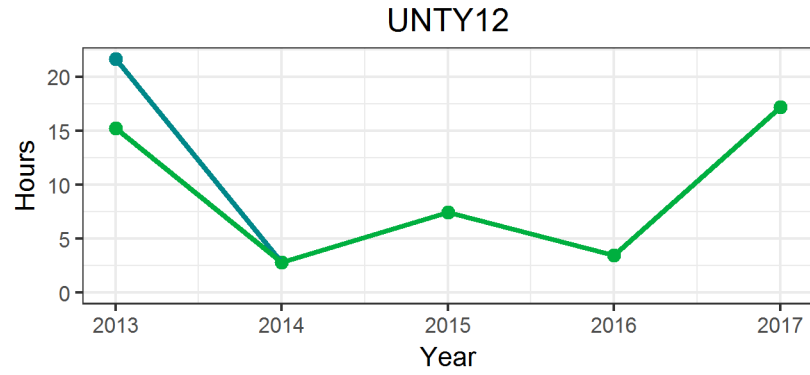












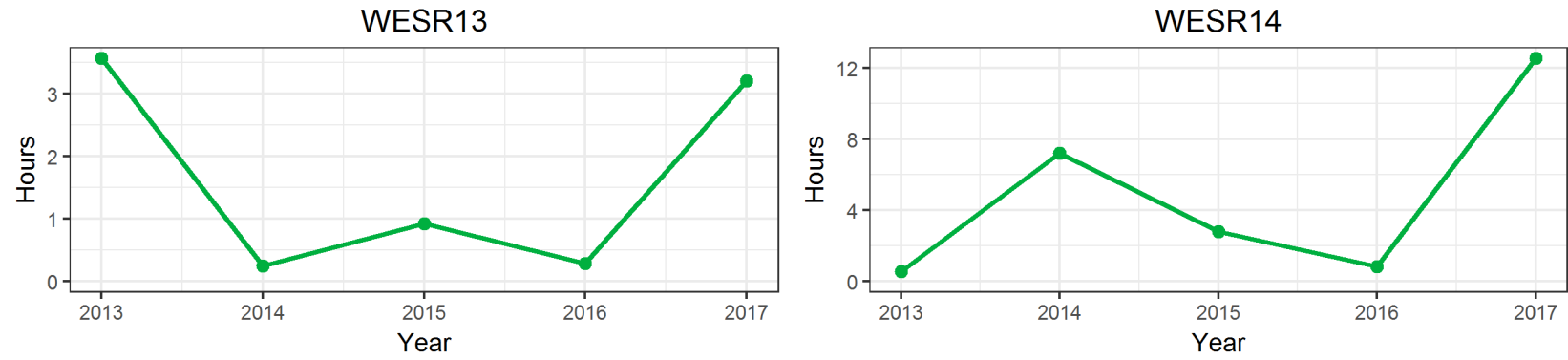
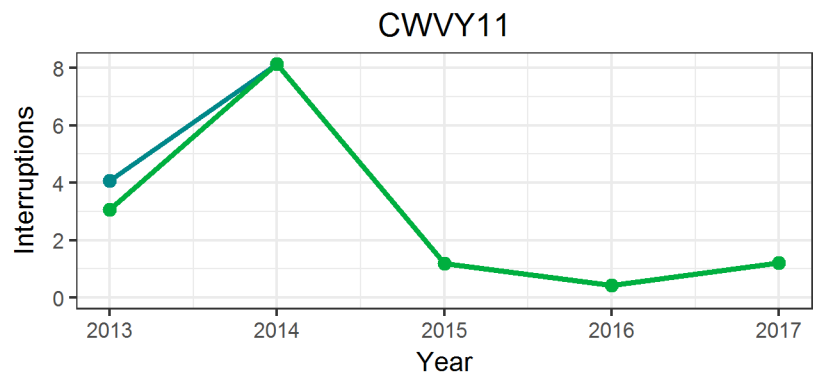
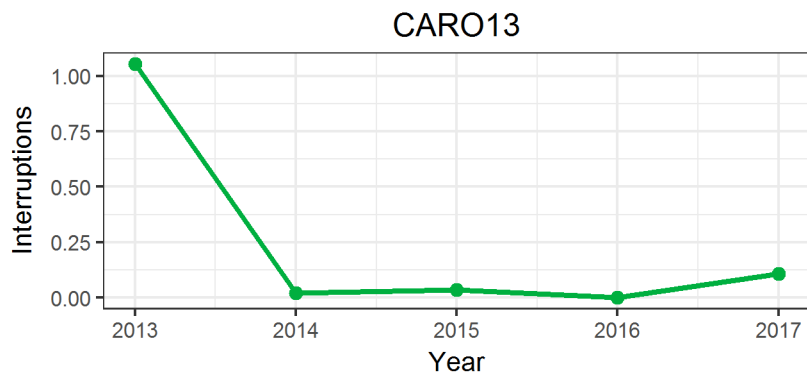
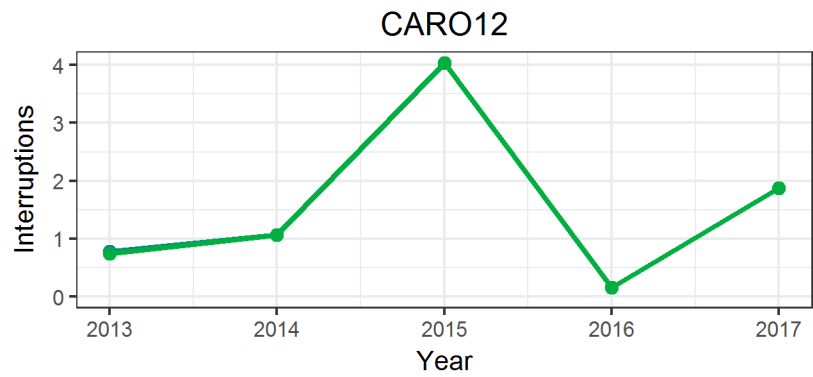
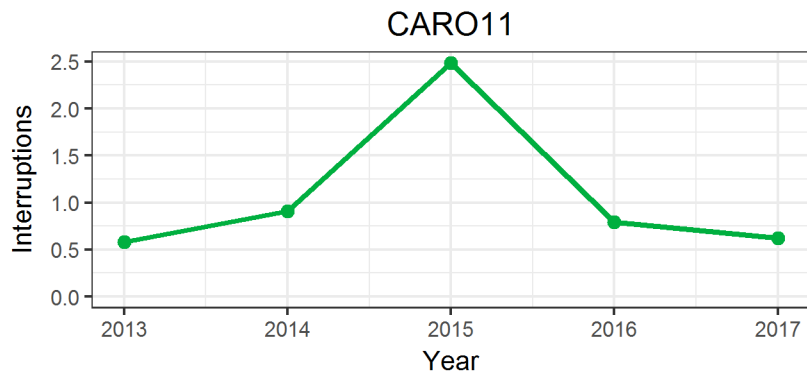
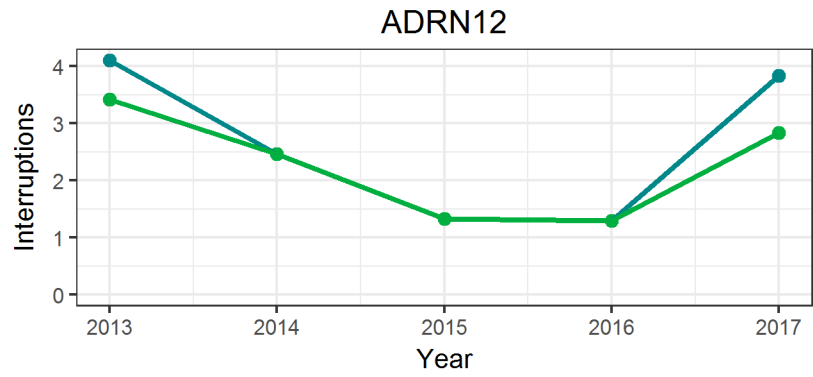
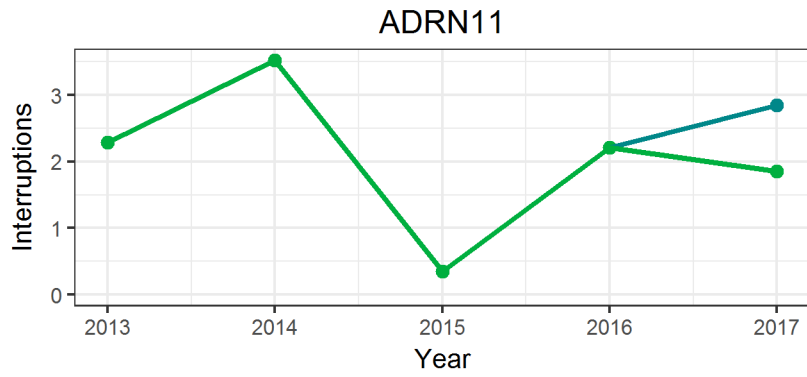


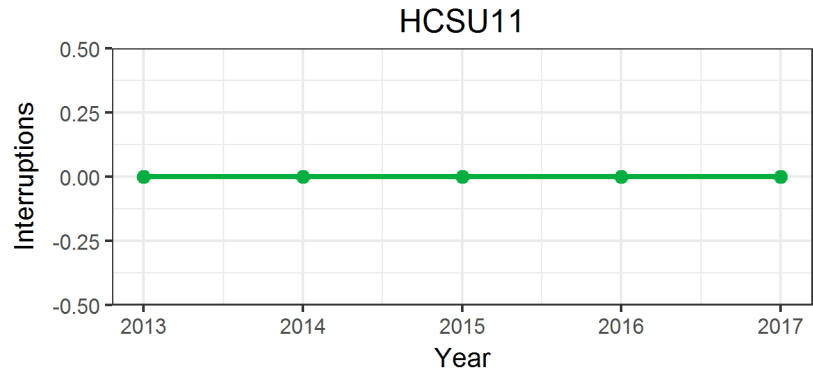
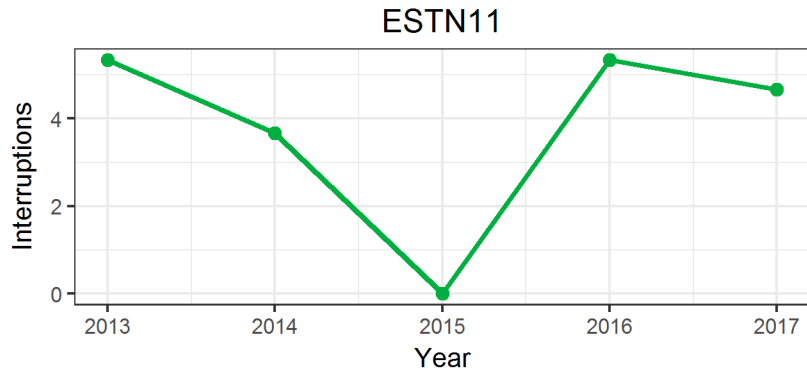
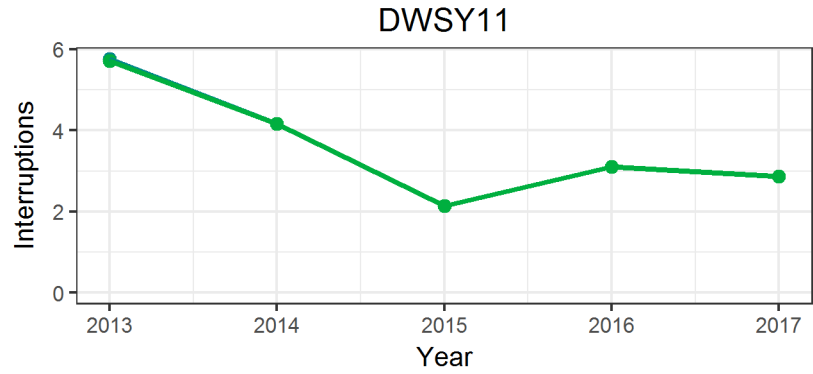
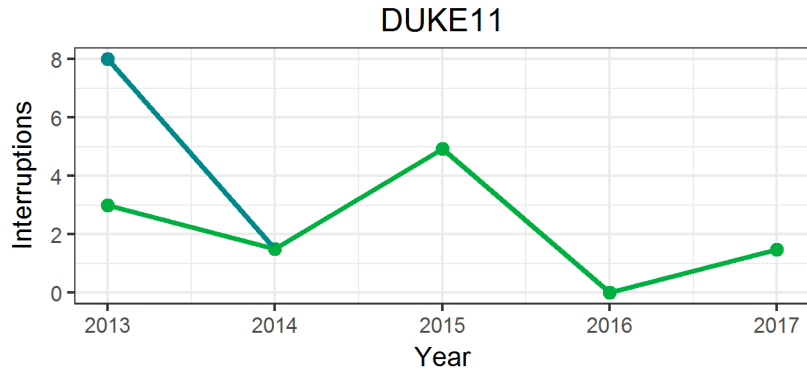
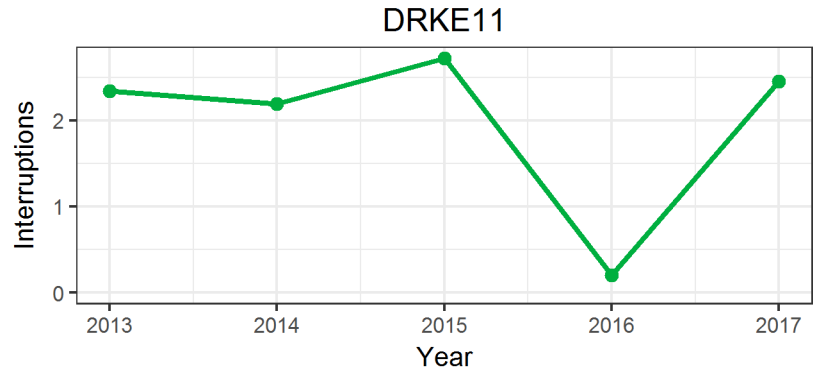
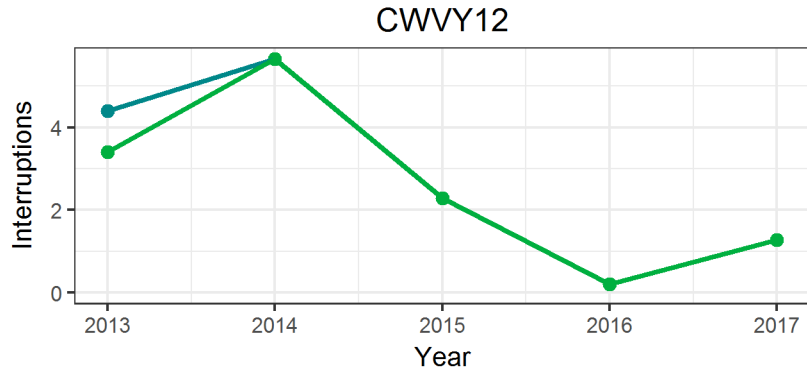
Figure 6 Five Years of Circuit SAIDI

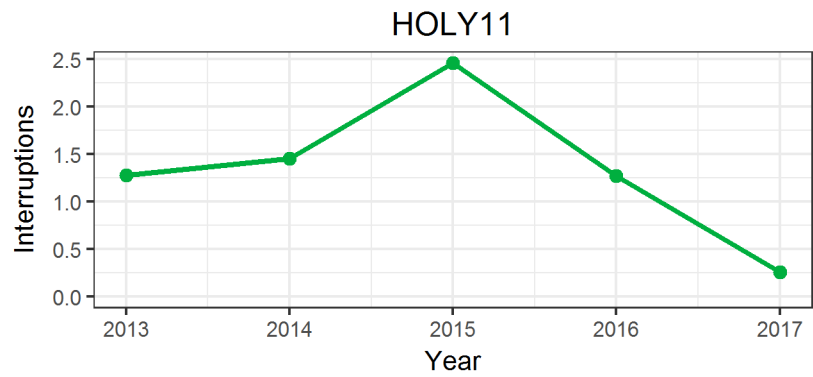
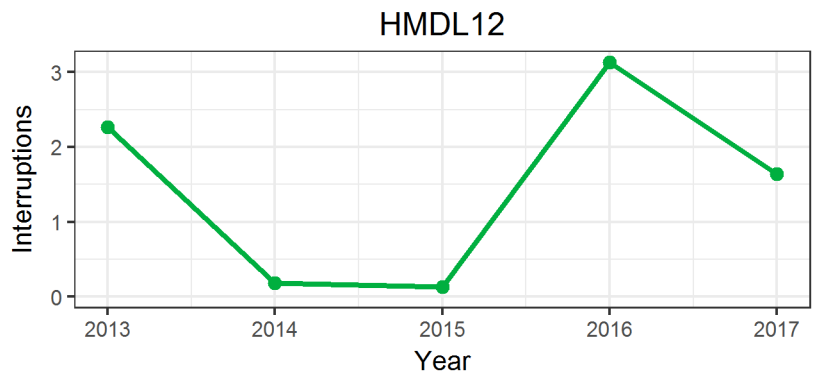
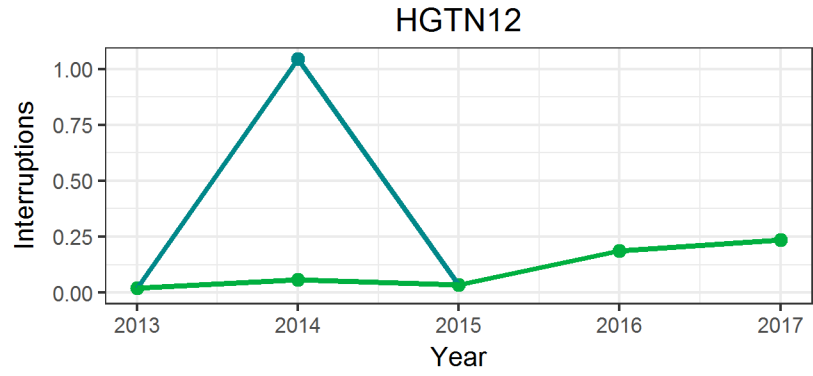
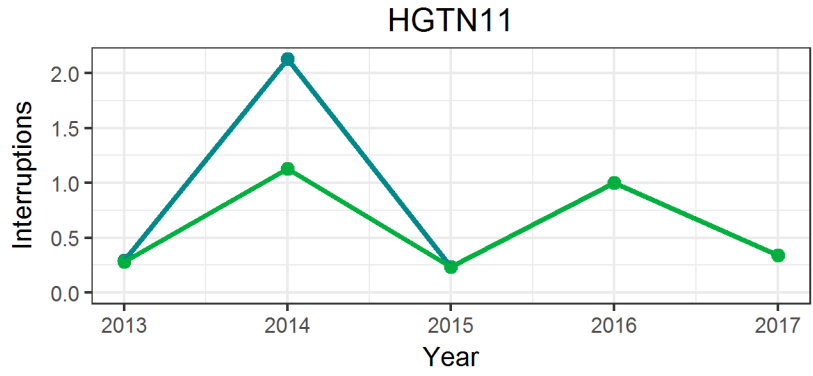
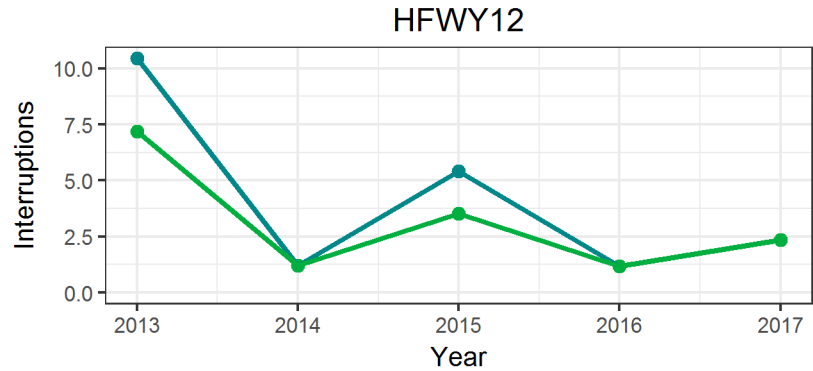
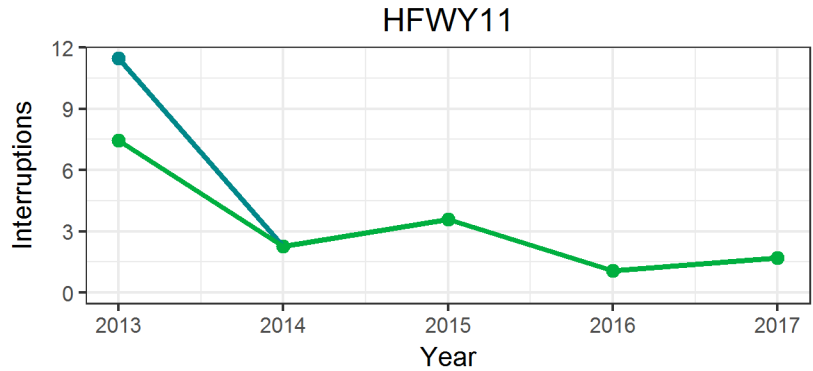
Five Years of Circuit SAIFI

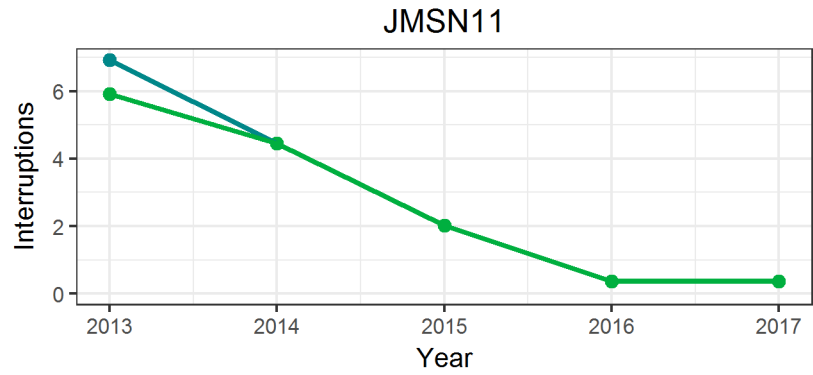
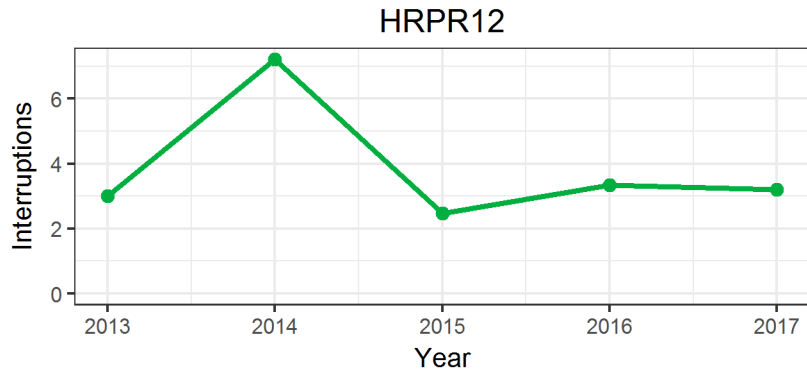
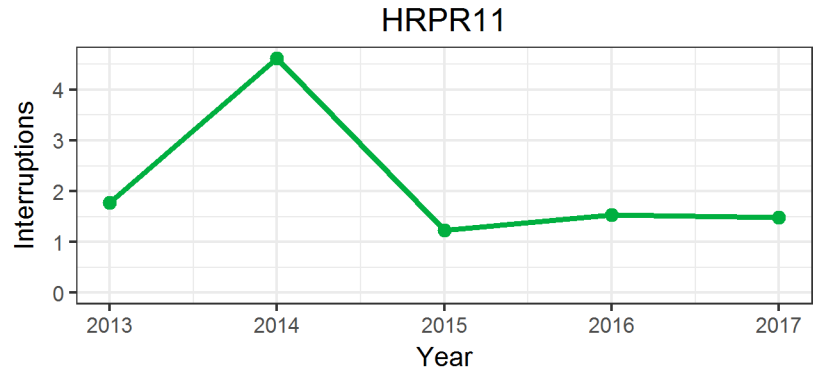
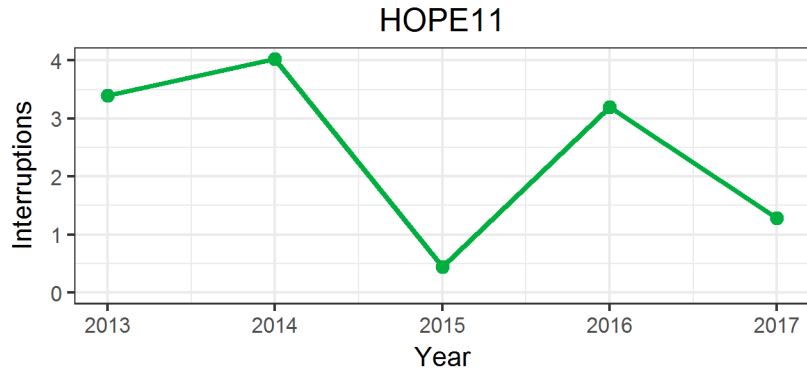
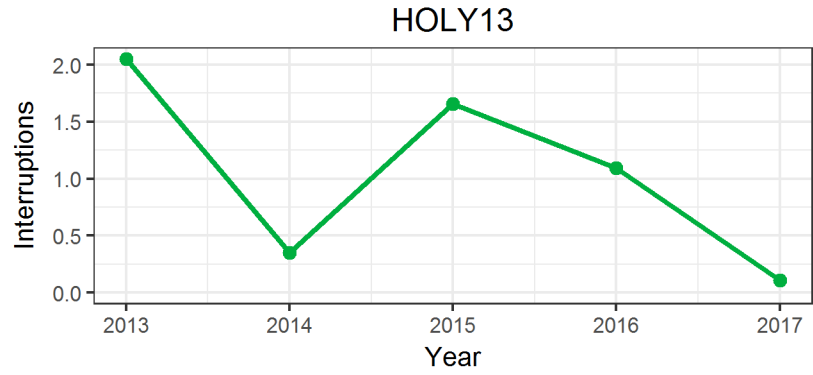
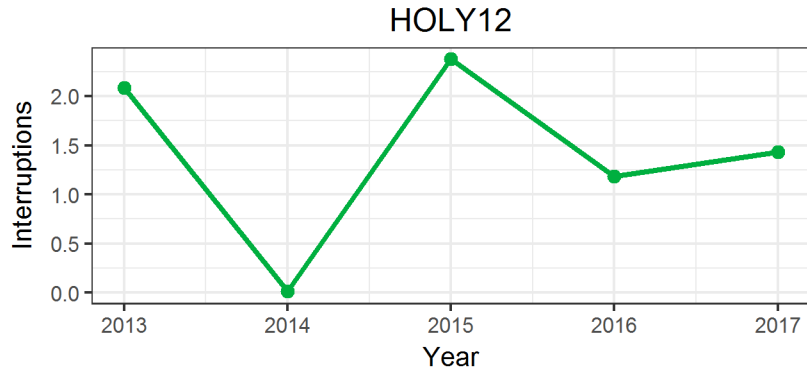
Circuit	2013	2014	2015	2016	2017	2017 MedEx
ADRN11	2.29	3.52	0.34	2.21	2.85	1.85
ADRN12	4.10	2.46	1.33	1.29	3.84	2.83
CARO11	0.58	0.91	2.48	0.79	0.62	0.62
CARO12	0.77	1.06	4.03	0.16	1.87	1.87
CARO13	1.05	0.02	0.04	0.00	0.11	0.11
CWVY11	4.07	8.13	1.18	0.42	1.20	1.20
CWVY12	4.40	5.65	2.29	0.20	1.27	1.27
DRKE11	2.34	2.19	2.72	0.20	2.46	2.46
DUKE11	8.00	1.50	4.93	0.00	1.48	1.48
DWSY11	5.76	4.16	2.13	3.10	2.87	2.87
ESTN11	5.33	3.67	0.00	5.33	4.67	4.67
HCSU11	0.00	0.00	0.00	0.00	0.00	0.00
HFVY11	11.46	2.26	3.58	1.08	1.71	1.71
HFVY12	10.44	1.21	5.42	1.17	2.36	2.36
HGTN11	0.30	2.13	0.24	1.00	0.34	0.34
HGTN12	0.02	1.04	0.03	0.19	0.24	0.24
HMDL12	2.27	0.18	0.13	3.13	1.64	1.64
HOLY11	1.28	1.45	2.46	1.27	0.26	0.26
HOLY12	2.08	0.01	2.38	1.18	1.43	1.43
HOLY13	2.05	0.35	1.66	1.09	0.11	0.11
HOPE11	3.40	4.02	0.45	3.19	1.28	1.28
HRPR11	1.77	4.61	1.22	1.53	1.49	1.49
HRPR12	3.00	7.20	2.46	3.34	3.21	3.21
JMSN11	6.92	4.45	2.01	0.36	0.37	0.37
JMSN12	5.08	5.35	2.16	0.33	1.16	1.16
JNTA11	5.05	4.80	2.30	3.33	1.00	1.00
JNTA12	5.00	4.67	2.13	3.96	1.23	1.23
JNVY11	4.14	3.20	16.77	3.25	2.26	2.26
JNVY12	4.89	1.98	21.36	2.00	2.26	2.26
JNVY31	4.51	3.73	12.96	6.09	3.66	3.66
LIME11	0.29	2.46	2.31	0.77	2.44	2.44
MRBT41	0.11	1.58	0.13	0.50	1.22	1.22
MRBT42	0.00	1.14	0.11	0.22	1.00	1.00
NYSA11	1.12	2.03	2.75	1.36	0.19	0.19
NYSA12	3.27	1.26	0.68	4.42	3.21	3.21
NYSA13	1.36	2.21	0.15	2.36	0.16	0.16
NYSA14	2.02	2.16	0.08	1.47	0.05	0.05
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	2.10	0.08	0.10	0.24	0.74	0.74
OIDA12	3.00	2.00	2.00	1.00	2.00	2.00
ONTO14	0.97	0.00	0.03	1.00	1.09	1.09
ONTO18	0.07	0.04	0.17	0.12	0.06	0.06
ONTO19	0.14	0.07	1.60	0.14	0.29	0.29
ONTO20	1.06	0.34	0.19	1.22	0.17	0.17
ONTO23	1.04	0.00	0.15	0.13	2.17	2.17
ONTO24	0.61	1.27	2.61	0.44	1.69	1.69
ONTO25	0.09	0.02	0.16	0.19	0.13	0.13
OYDM11	0.00	0.00	0.00	0.00	0.93	0.93
PNCK11	7.07	0.63	3.63	2.91	0.96	0.96
PNCK12	4.00	0.00	4.00	1.00	1.00	1.00
PRMA12	5.50	6.50	2.00	8.00	3.00	2.33
PRMA42	3.30	2.42	3.37	1.66	4.60	3.60
RKVL11	4.81	3.96	9.25	2.52	2.25	2.25
UNTY11	6.99	3.22	1.39	1.17	6.21	6.21
UNTY12	5.32	2.22	2.07	0.90	6.81	6.81
VALE11	2.52	2.45	1.16	0.10	1.59	1.59
VALE12	0.00	0.00	0.00	0.00	0.50	0.50
VALE13	1.34	2.86	0.83	0.23	1.18	1.18
VALE14	0.68	3.13	5.62	0.05	0.91	0.91
VALE15	0.17	2.24	1.33	2.84	1.37	1.37
WESR13	0.23	0.14	0.29	0.19	2.34	2.34
WESR14	0.38	2.61	2.61	0.43	3.23	3.23

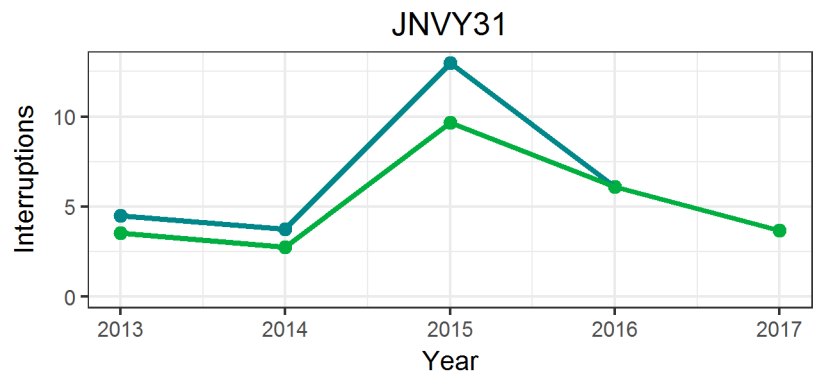
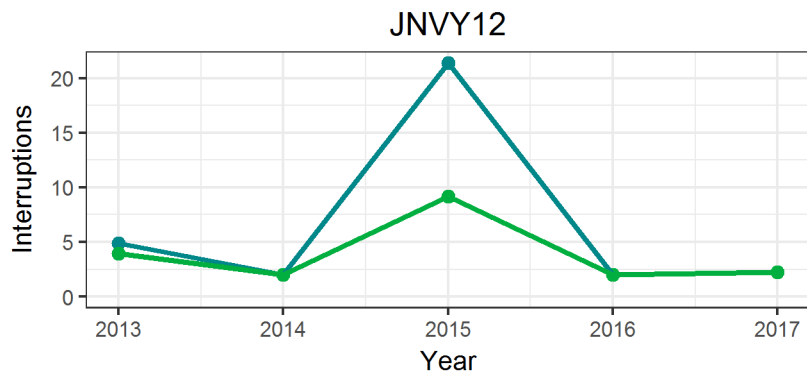
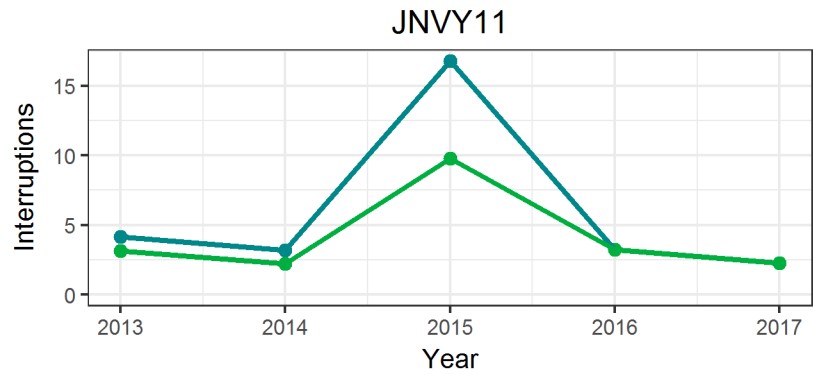
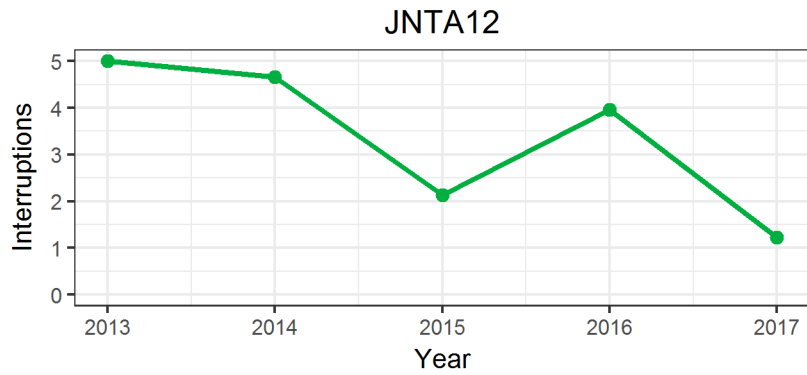
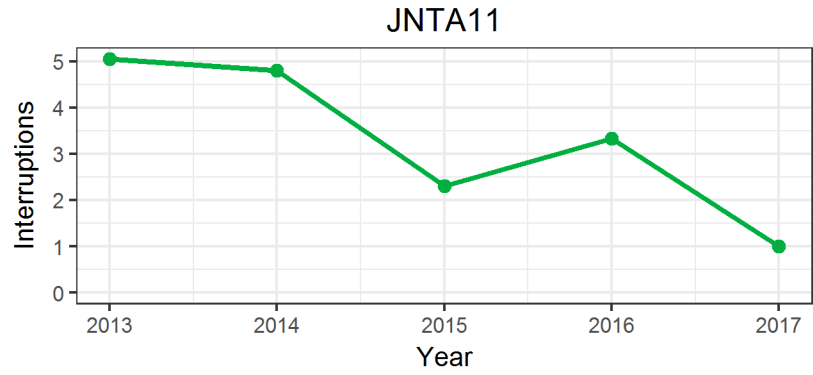
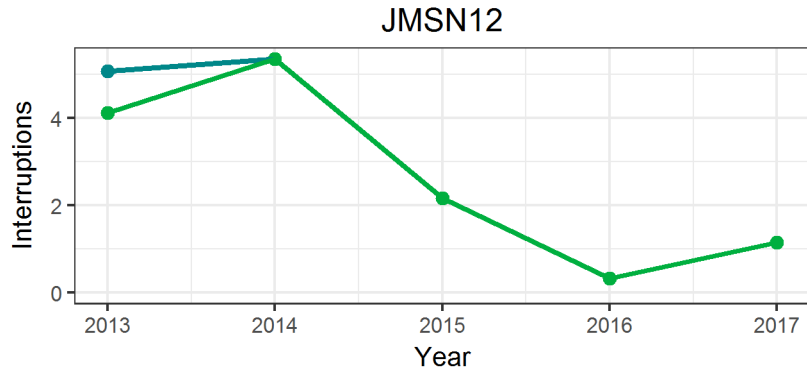
Table 7 Five Years of Circuit SAIFI

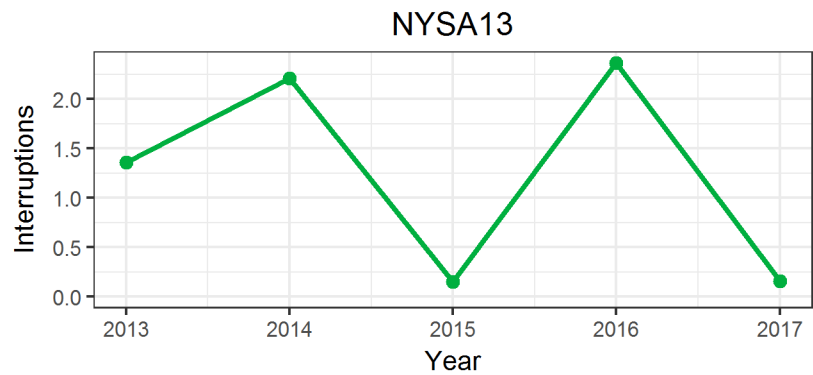
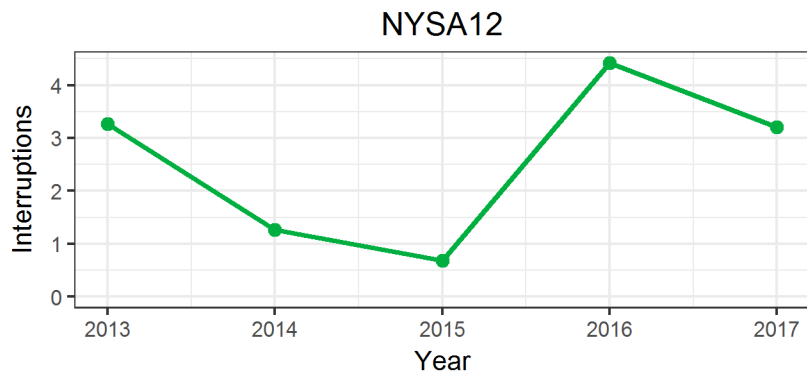
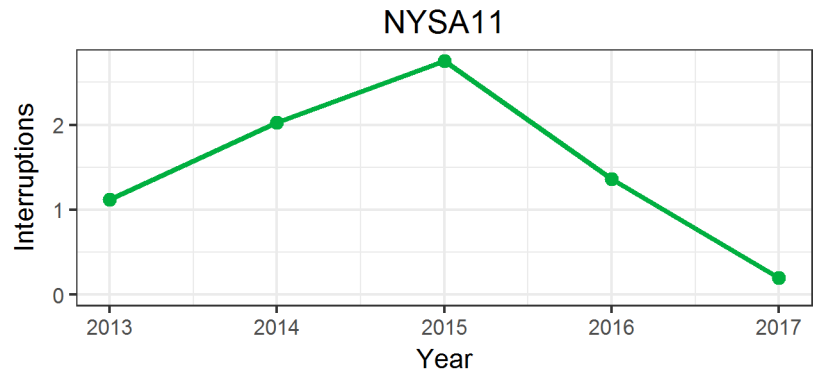
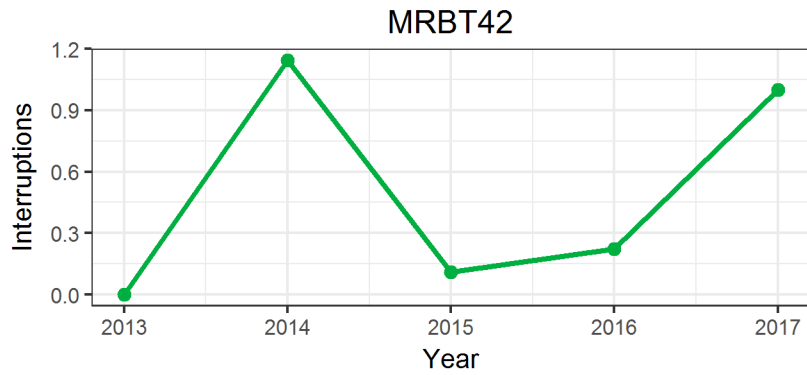
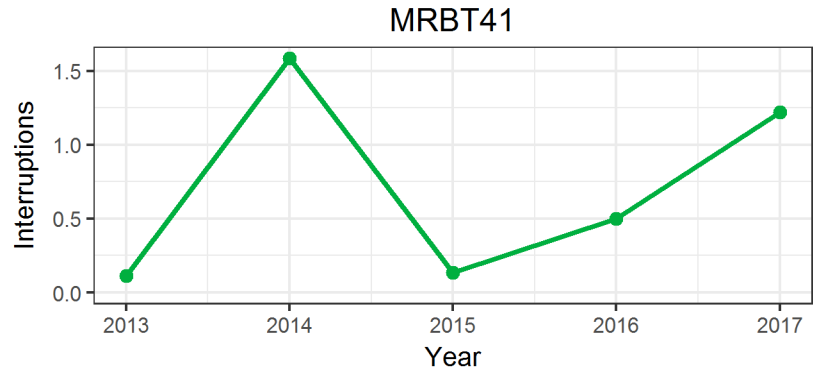
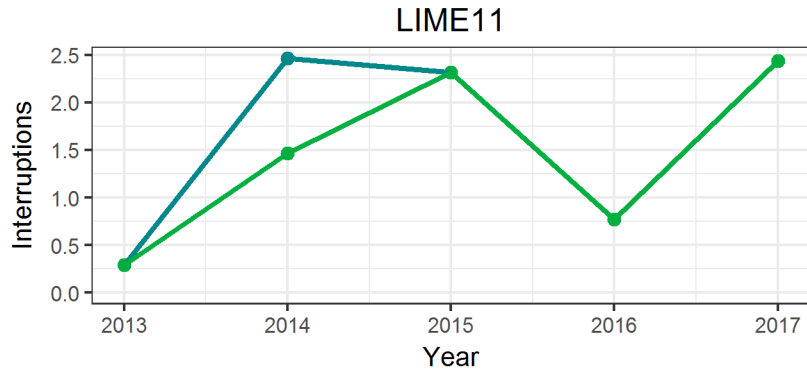


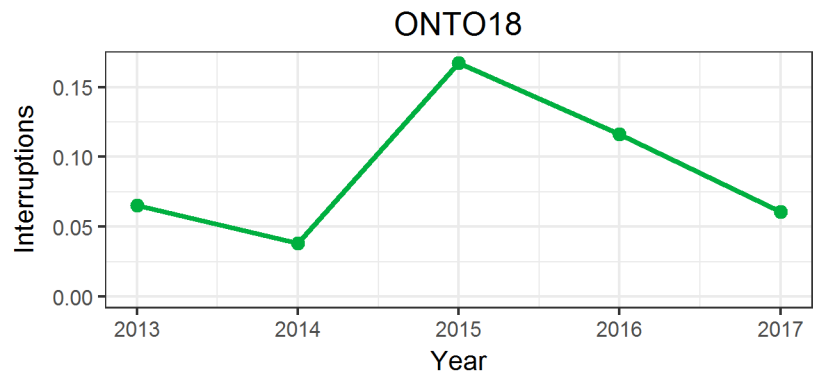
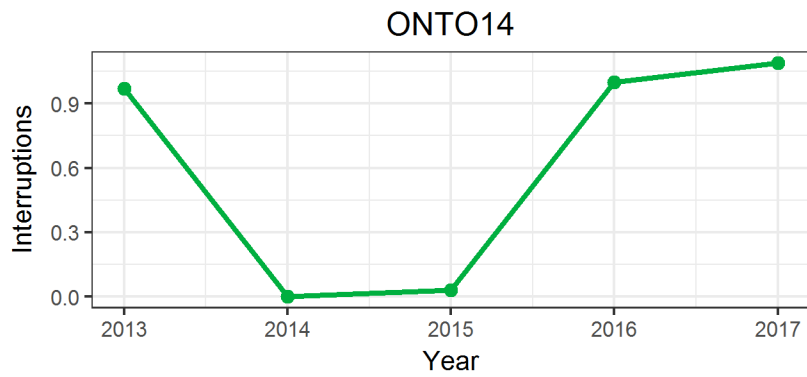
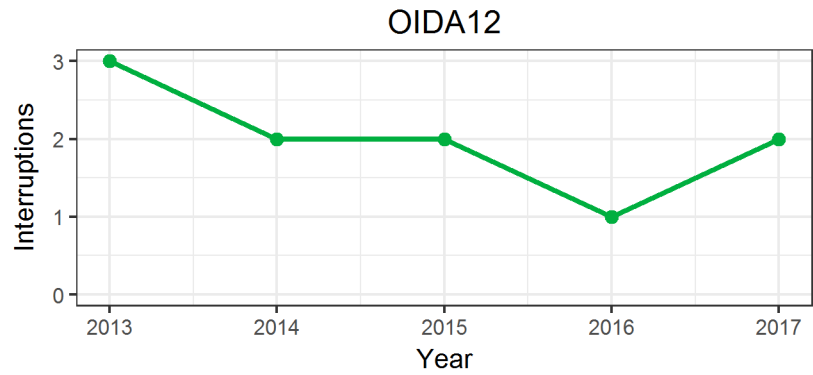
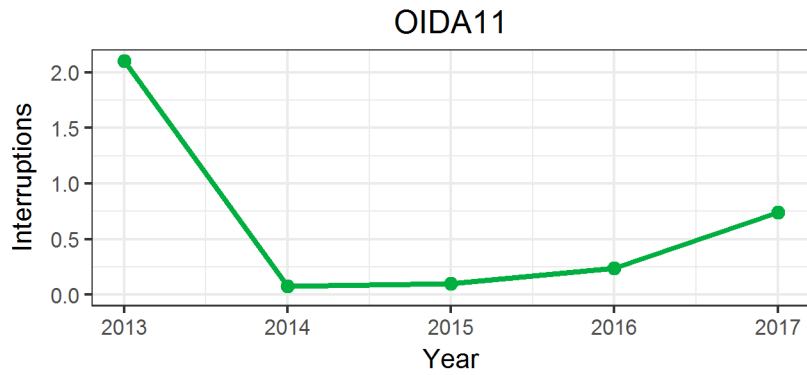
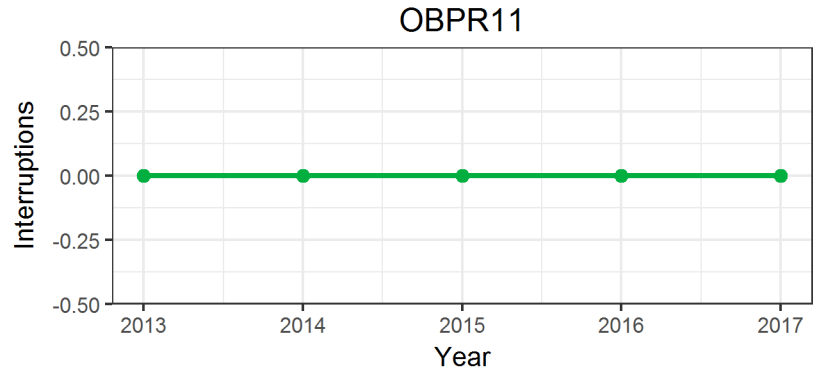
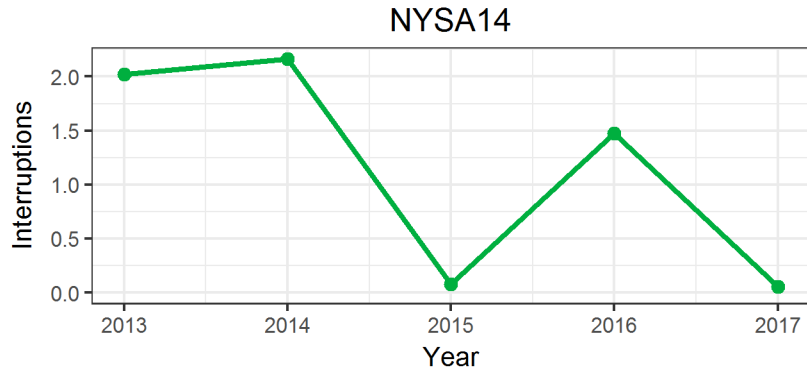


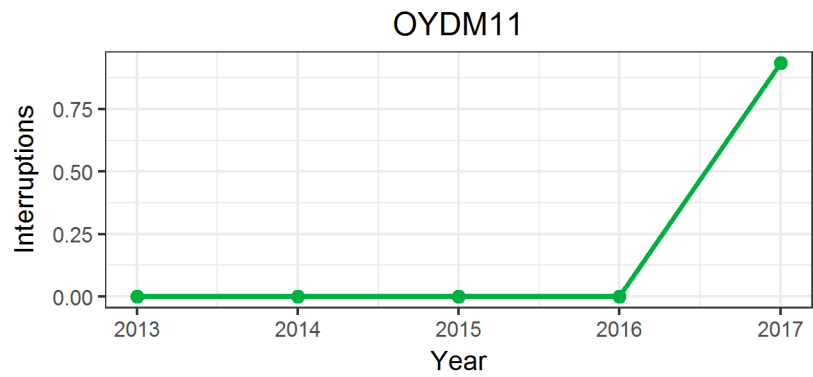
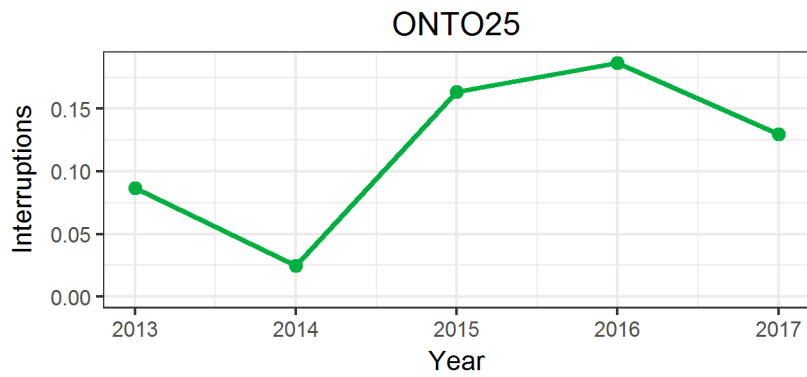
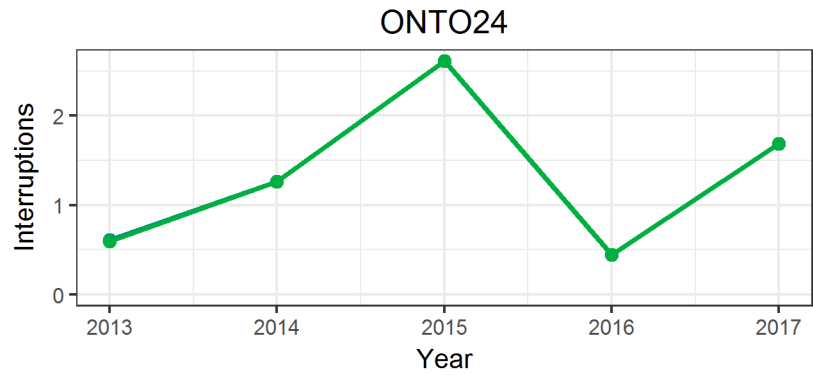
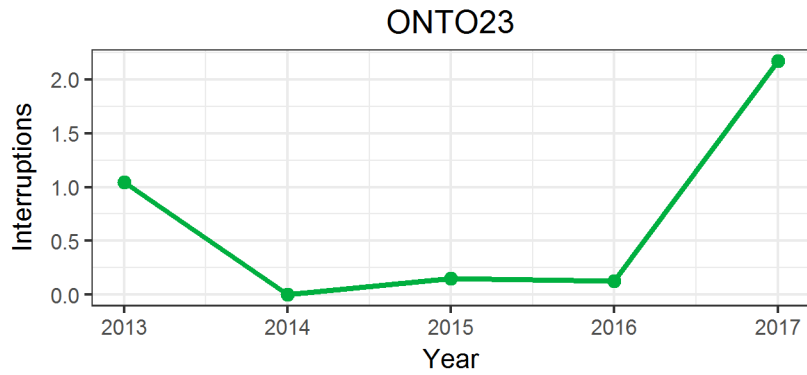
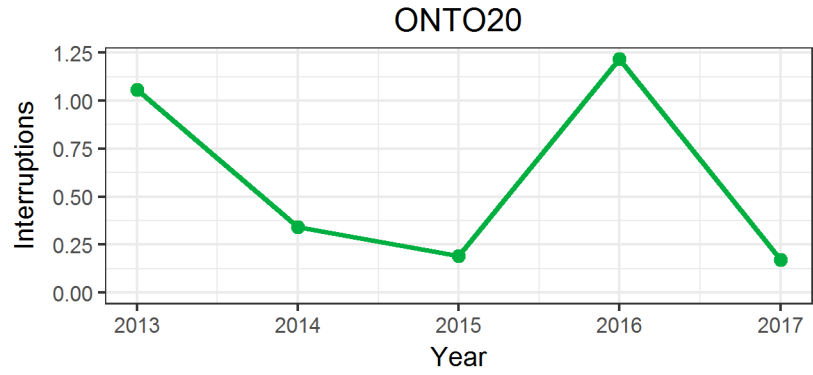
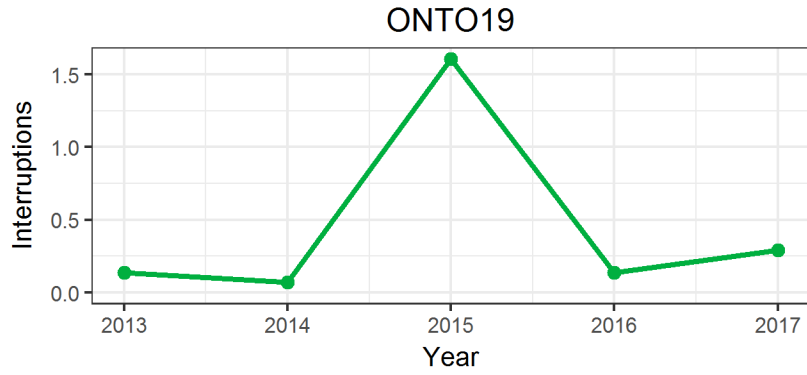


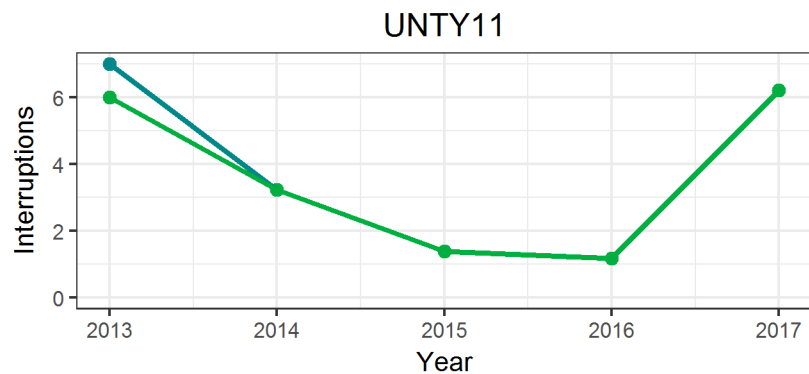
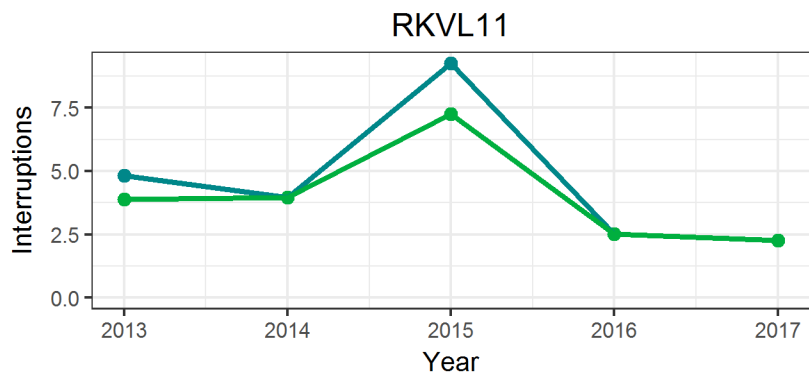
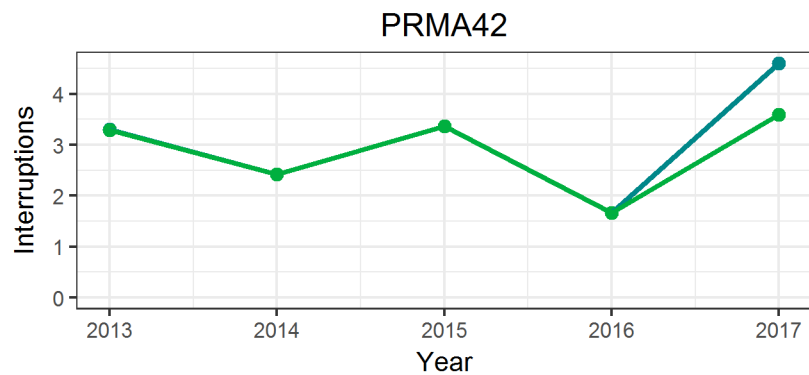
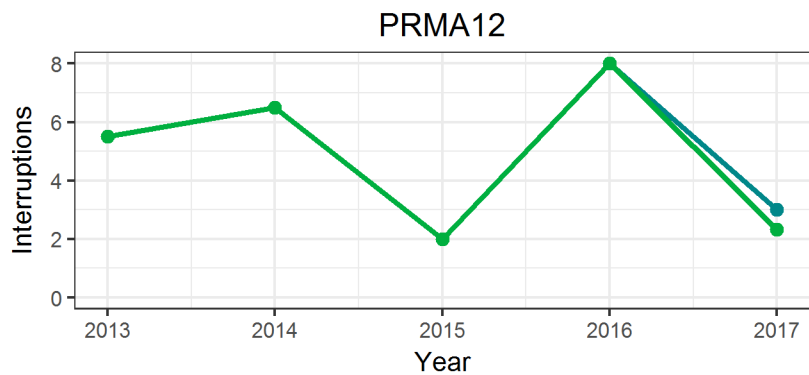
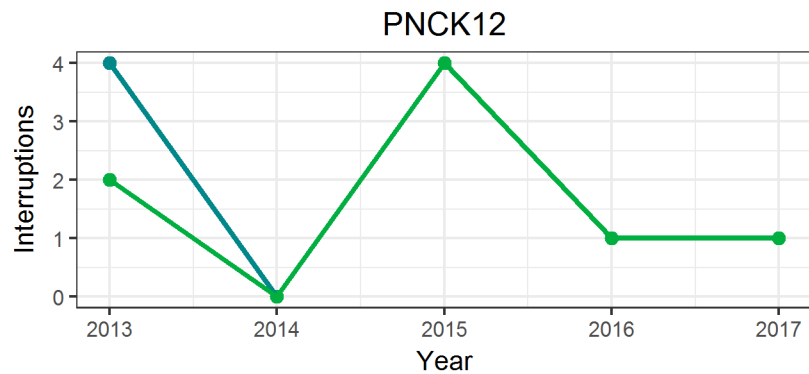
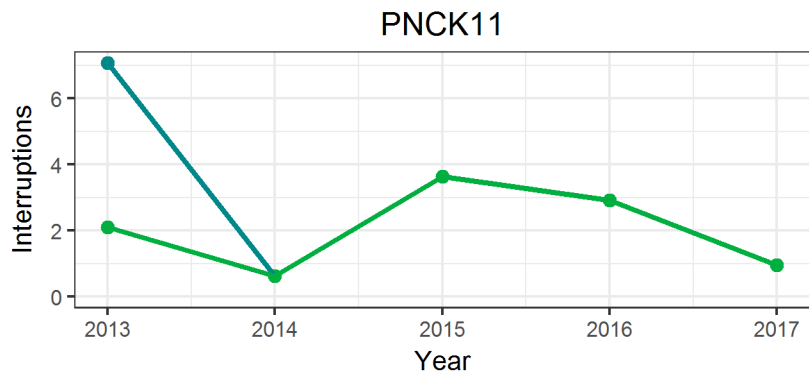


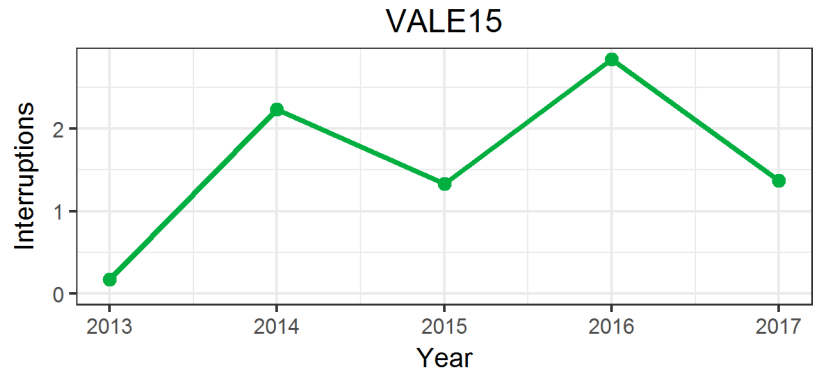
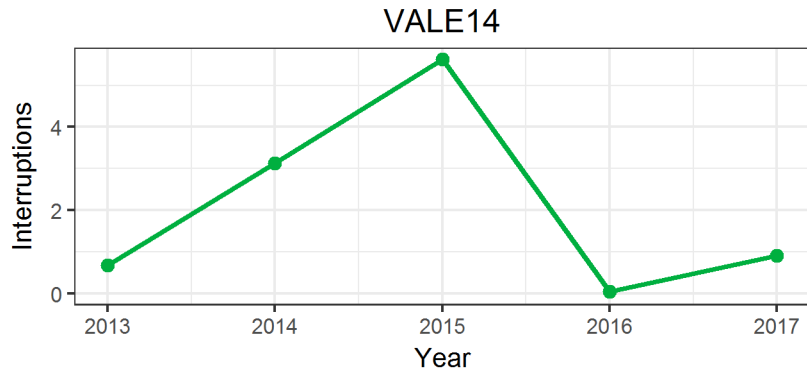
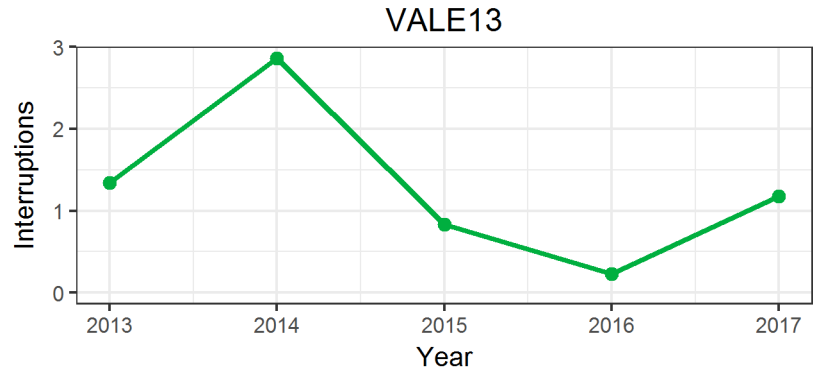
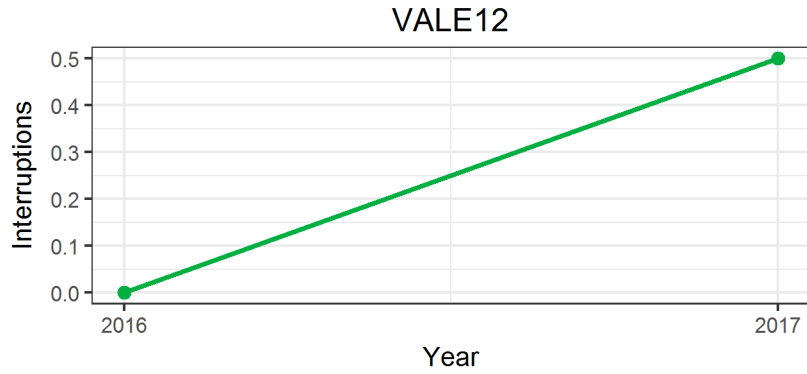
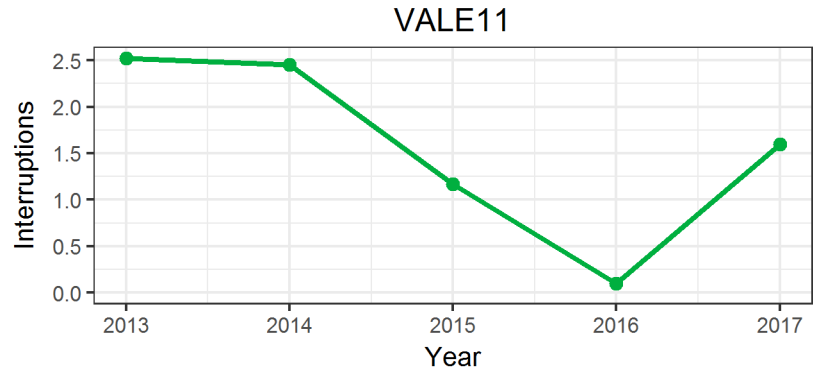
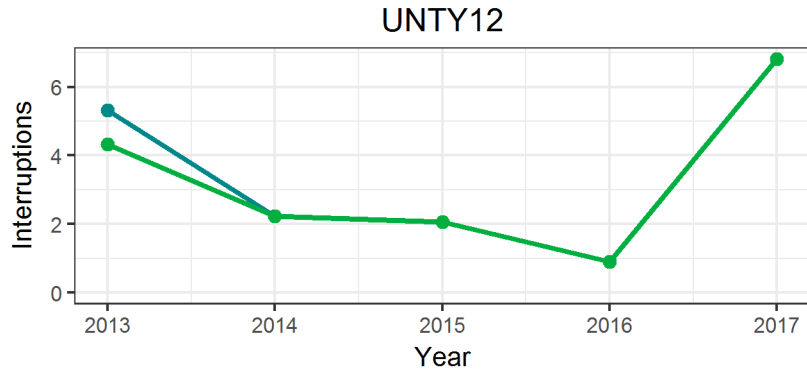












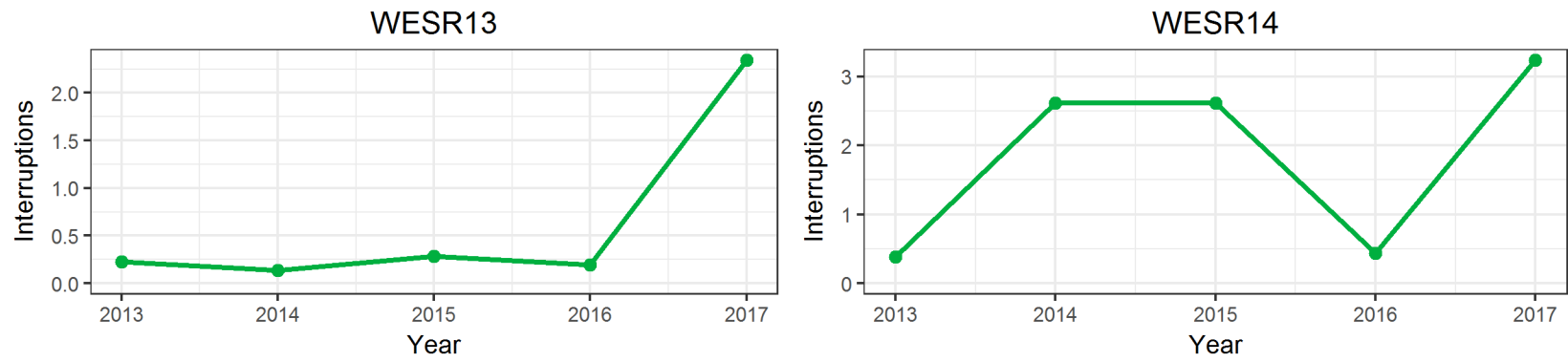
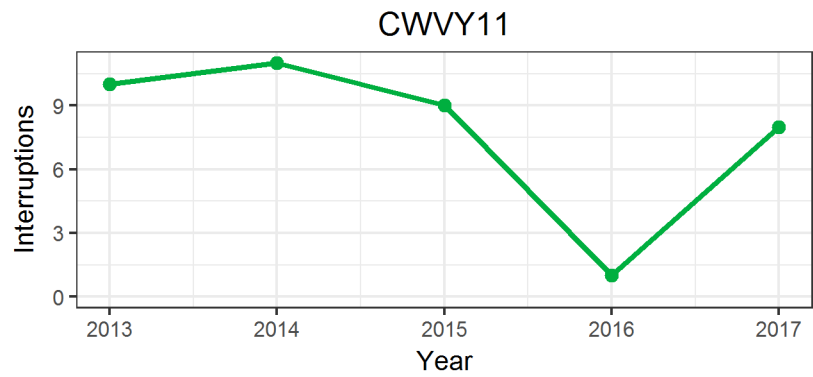
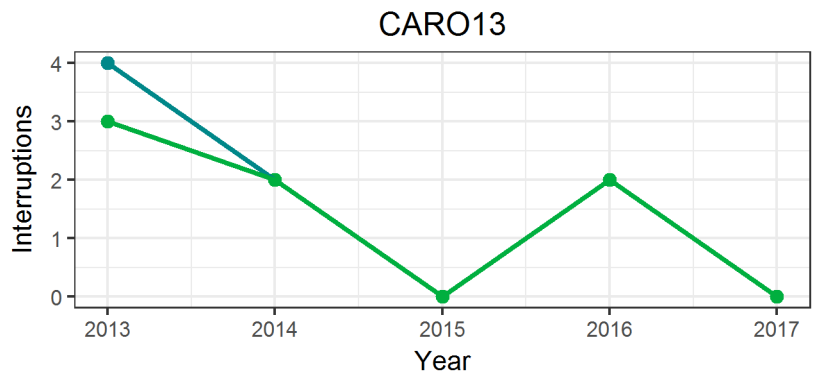
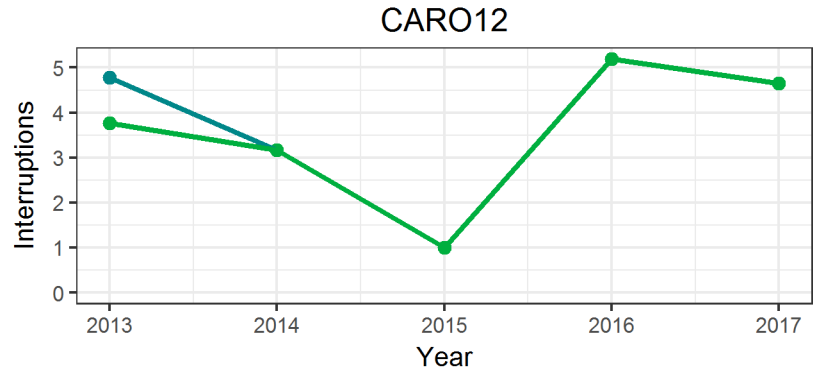
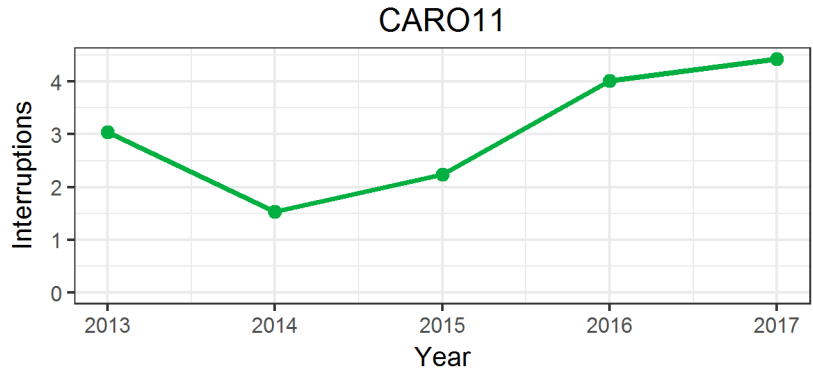
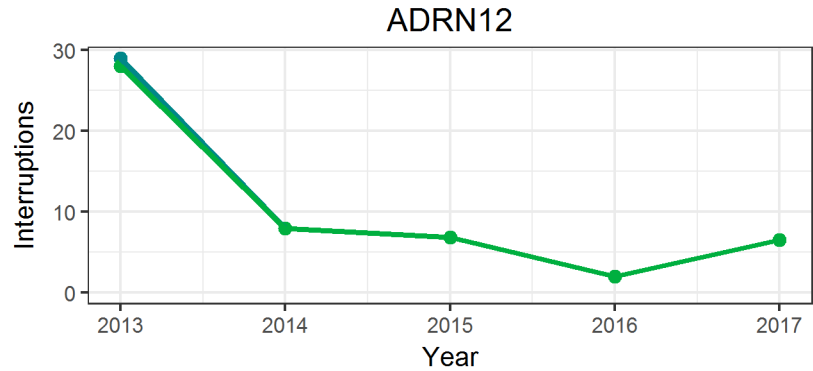
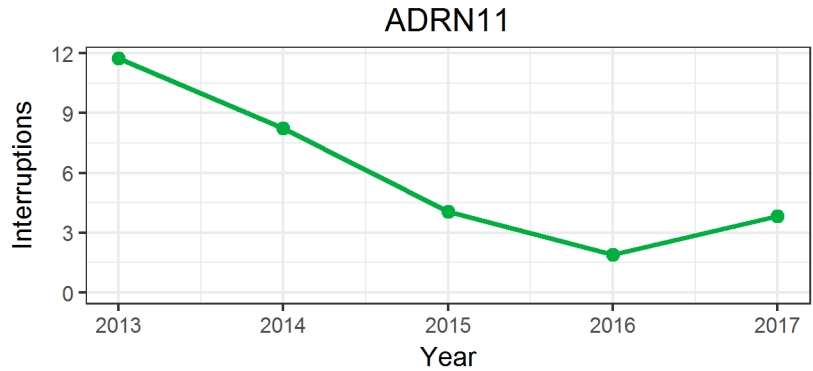


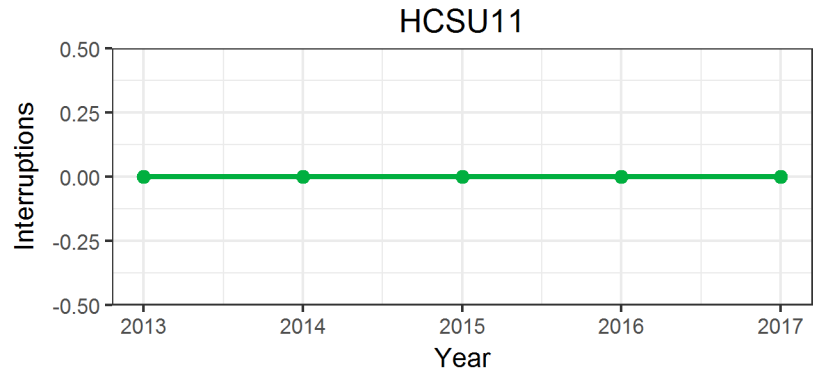
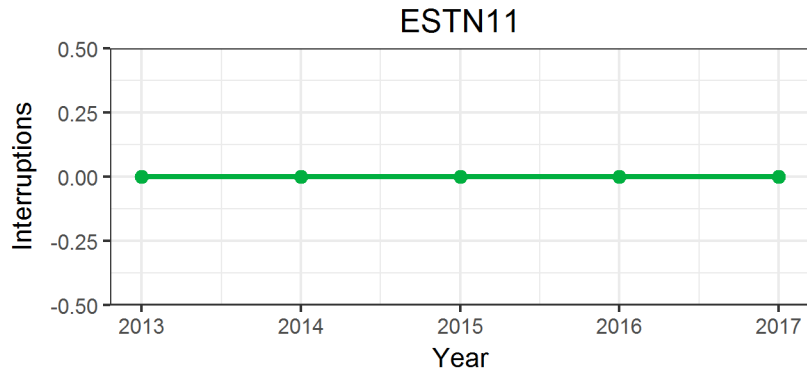
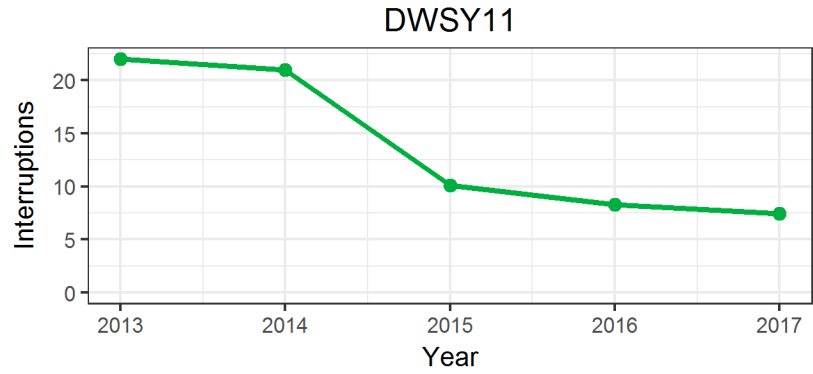
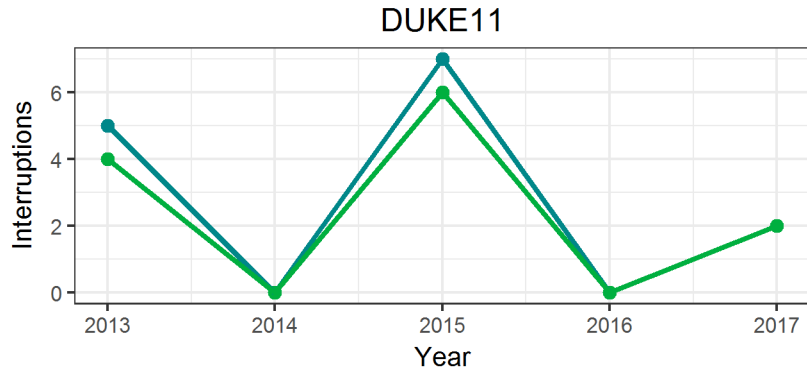
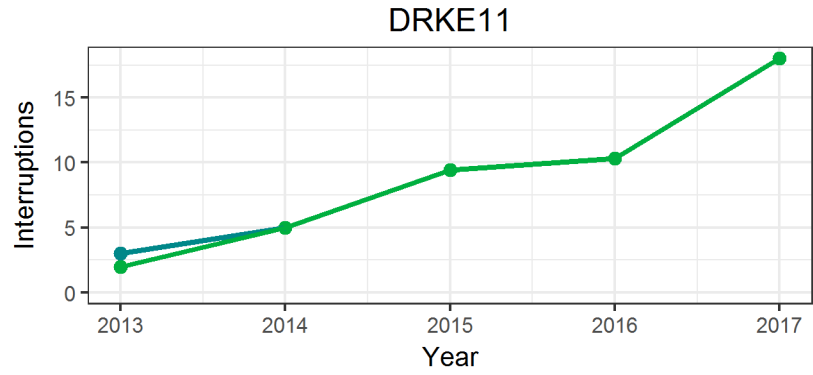
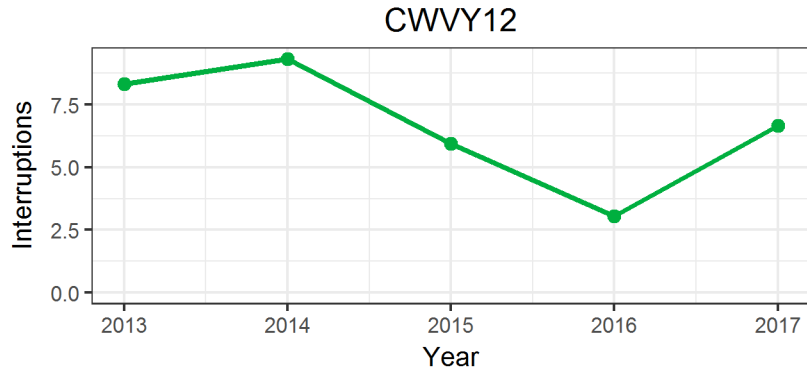
Figure 7 Five Years of Circuit SAIFI

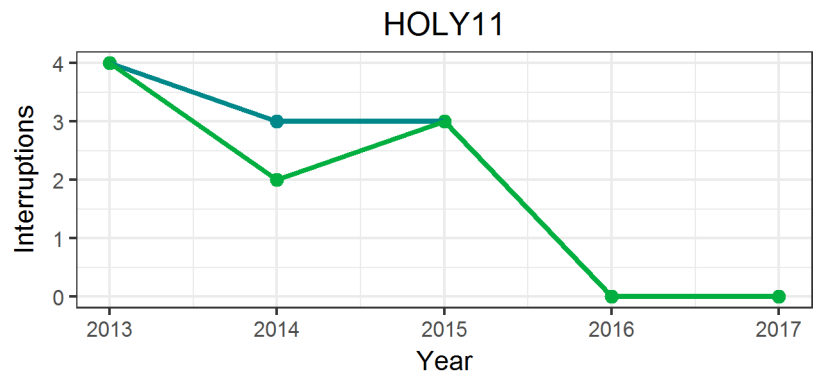
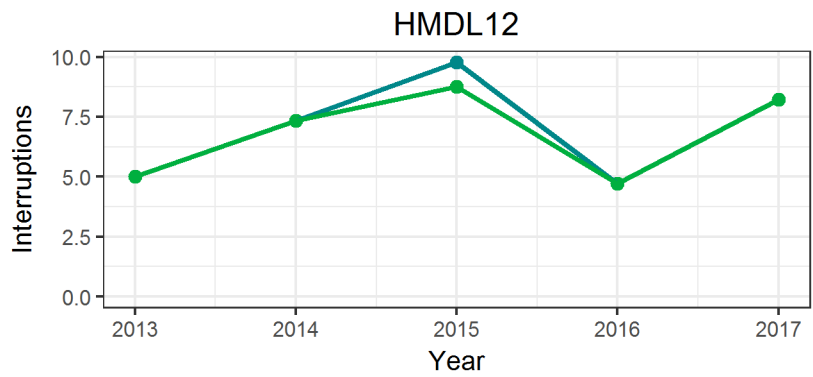
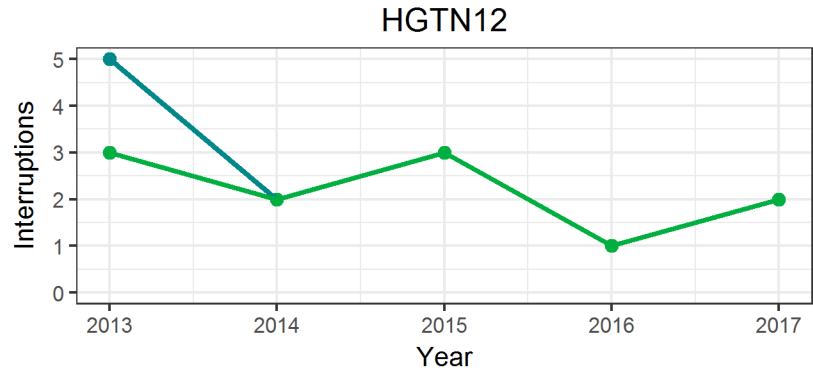
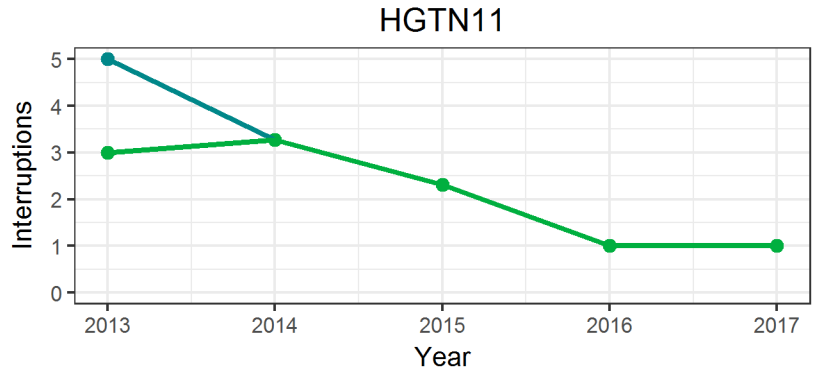
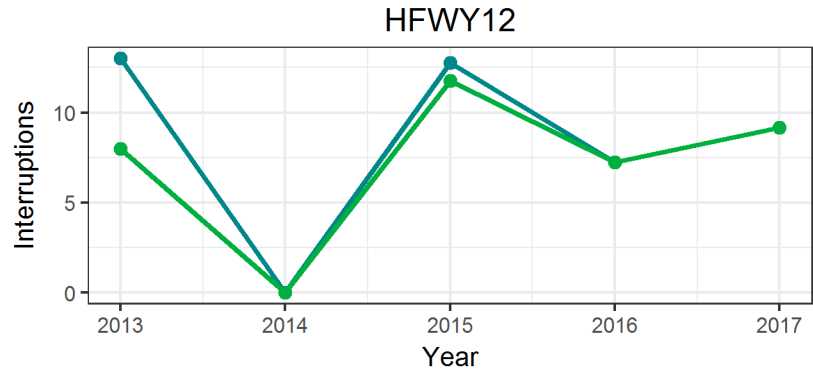
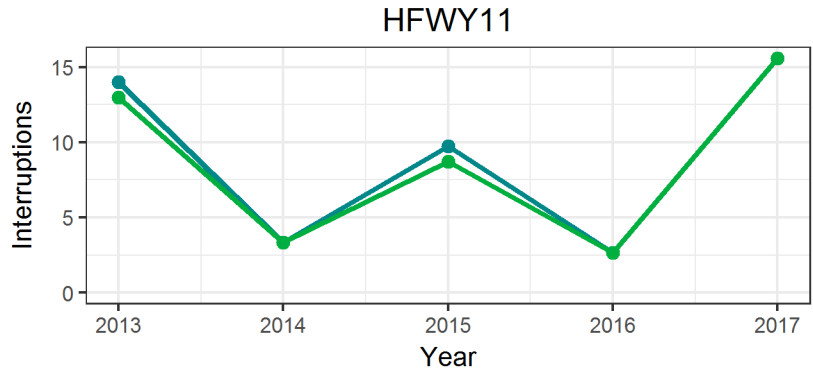
Five Years of Circuit MAIFI_E

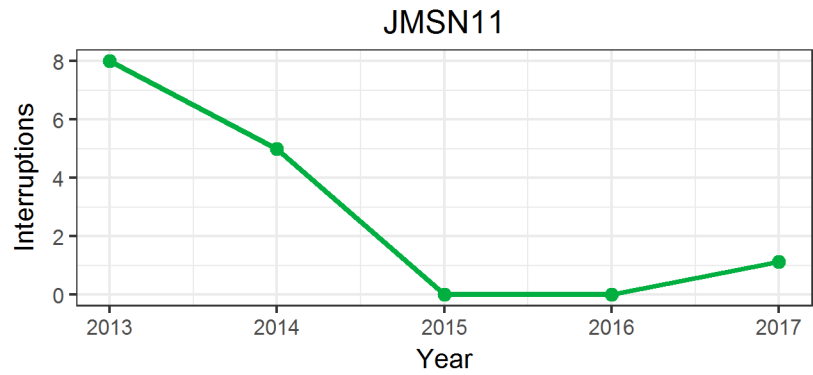
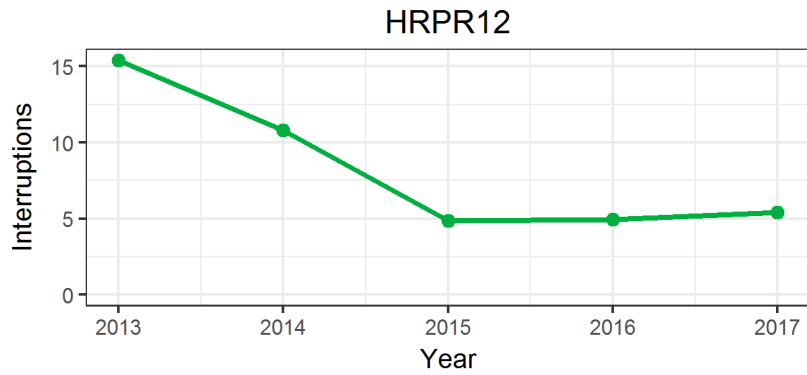
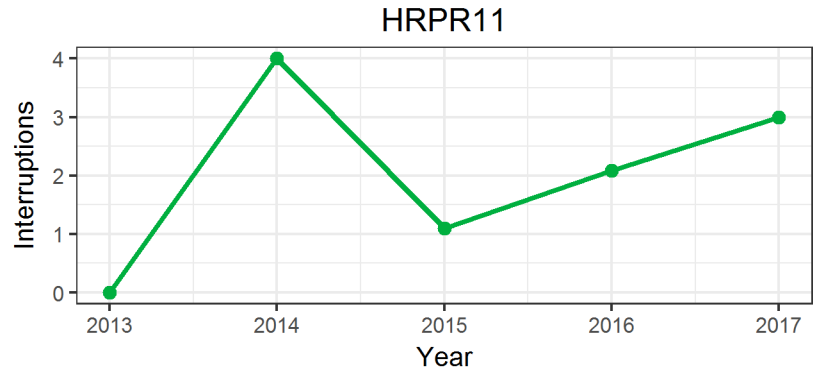
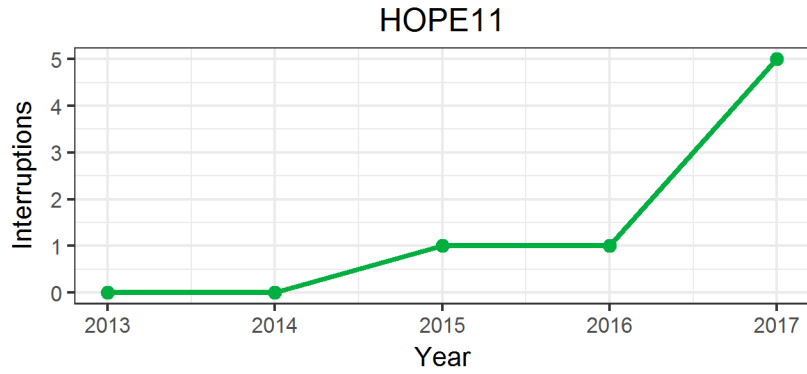
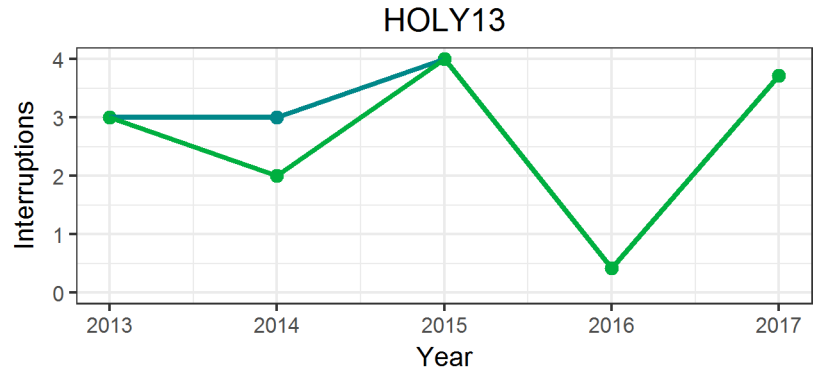
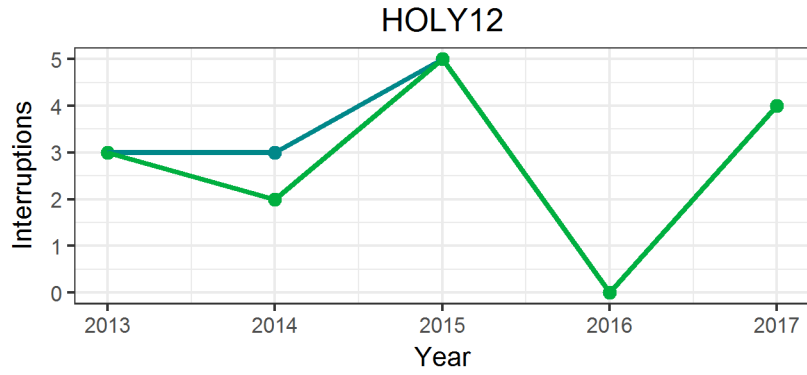
Circuit	2013	2014	2015	2016	2017	2017 MedEx
ADRN11	11.73	8.25	4.05	1.91	3.84	3.84
ADRN12	28.94	7.94	6.84	2.00	6.55	6.55
CARO11	3.04	1.53	2.23	4.01	4.42	4.42
CARO12	4.77	3.17	1.00	5.19	4.66	4.66
CARO13	4.00	2.00	0.00	2.00	0.00	0.00
CWVY11	10.00	11.00	9.00	1.00	8.00	8.00
CWVY12	8.31	9.31	5.94	3.06	6.65	6.65
DRKE11	3.00	5.00	9.42	10.33	18.00	18.00
DUKE11	5.00	0.00	7.00	0.00	2.00	2.00
DWSY11	22.00	21.00	10.13	8.27	7.47	7.47
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	14.00	3.35	9.74	2.64	15.57	15.57
HFVY12	13.00	0.00	12.77	7.25	9.15	9.15
HGTN11	5.00	3.27	2.31	1.00	1.00	1.00
HGTN12	5.00	2.00	3.00	1.00	2.00	2.00
HMDL12	5.00	7.33	9.76	4.72	8.23	8.23
HOLY11	4.00	3.00	3.00	0.00	0.00	0.00
HOLY12	3.00	3.00	5.00	0.00	4.00	4.00
HOLY13	3.00	3.00	4.00	0.42	3.72	3.72
HOPE11	0.00	0.00	1.00	1.00	5.00	5.00
HRPR11	0.00	4.00	1.10	2.09	3.00	3.00
HRPR12	15.38	10.82	4.86	4.96	5.42	5.42
JMSN11	8.00	5.00	0.00	0.00	1.11	1.11
JMSN12	8.00	4.00	6.00	3.00	9.67	9.67
JNTA11	0.00	23.00	9.00	9.00	12.00	12.00
JNTA12	21.98	24.73	9.76	9.25	14.13	14.13
JNVY11	8.00	8.00	12.70	3.66	6.32	6.16
JNVY12	9.00	8.00	7.00	4.00	5.00	5.00
JNVY31	11.35	12.75	7.81	9.28	10.12	10.12
LIME11	4.98	2.32	3.45	1.00	2.19	2.19
MRBT41	0.00	0.00	1.00	0.00	1.00	1.00
MRBT42	0.00	4.00	0.00	0.00	0.00	0.00
NYSA11	8.00	2.00	1.00	1.00	0.00	0.00
NYSA12	7.98	1.06	1.48	5.42	7.15	7.15
NYSA13	0.00	0.00	0.00	0.00	1.26	0.26
NYSA14	7.00	1.00	0.00	1.00	1.35	1.00
OBPR11	0.00	0.00	0.00	0.00	0.00	0.00
OIDA11	1.29	0.00	2.94	4.23	2.00	2.00
OIDA12	0.00	0.00	0.00	0.00	0.00	0.00
ONTO14	0.00	0.00	0.00	1.00	1.00	1.00
ONTO18	0.00	3.00	3.00	0.00	2.00	2.00
ONTO19	1.00	1.66	1.50	1.36	0.00	0.00
ONTO20	0.00	2.00	0.00	0.00	0.00	0.00
ONTO23	2.00	0.00	1.00	2.00	7.00	7.00
ONTO24	2.00	0.00	1.32	0.94	3.28	3.28
ONTO25	1.00	2.00	1.00	0.00	3.00	3.00
OYDM11	0.00	0.00	0.00	0.00	0.00	0.00
PNCK11	6.00	0.00	12.17	3.00	4.00	4.00
PNCK12	0.00	0.00	0.00	0.00	0.00	0.00
PRMA12	6.00	11.00	2.00	3.00	5.00	5.00
PRMA42	7.00	10.00	6.32	4.76	12.23	12.23
RKVL11	11.00	10.00	6.00	6.00	6.00	6.00
UNTY11	9.00	7.00	6.00	1.00	15.00	15.00
UNTY12	8.00	0.00	6.73	1.22	14.85	14.85
VALE11	0.00	0.00	1.00	4.17	4.55	4.55
VALE12	0.00	0.00	0.00	0.00	0.00	0.00
VALE13	9.18	1.09	1.88	4.90	3.73	3.73
VALE14	0.00	0.00	12.62	1.07	2.61	2.61
VALE15	0.00	0.00	2.37	4.51	2.76	2.76
WESR13	2.00	2.44	0.84	0.00	0.27	0.27
WESR14	0.00	0.00	0.00	0.00	2.90	2.90

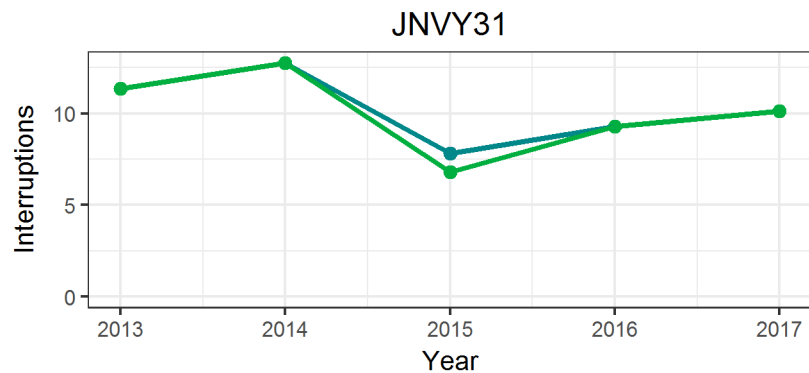
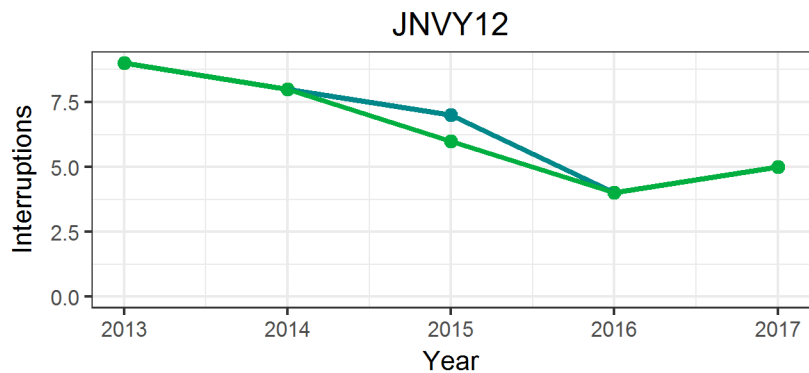
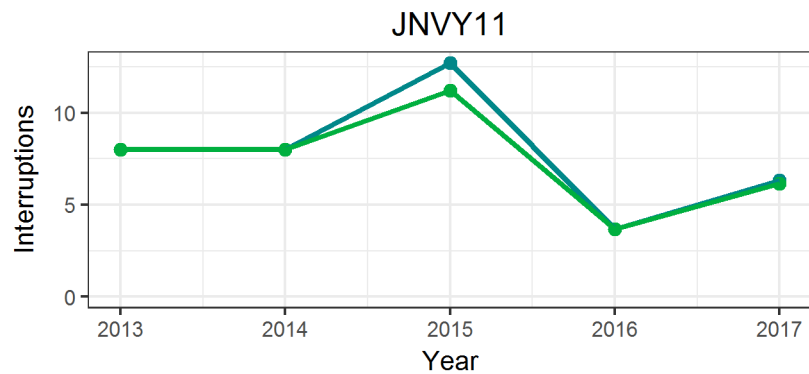
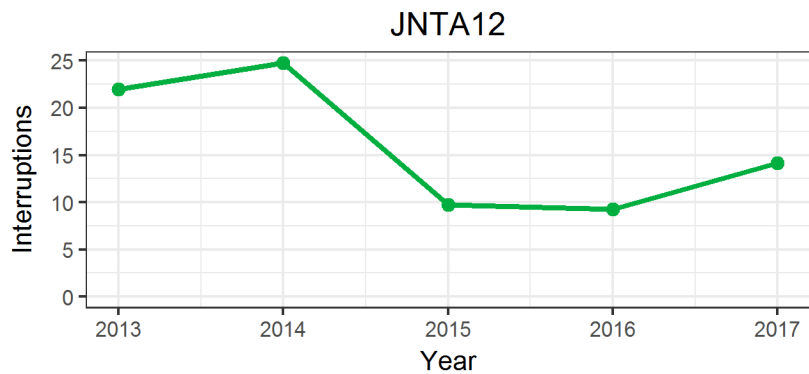
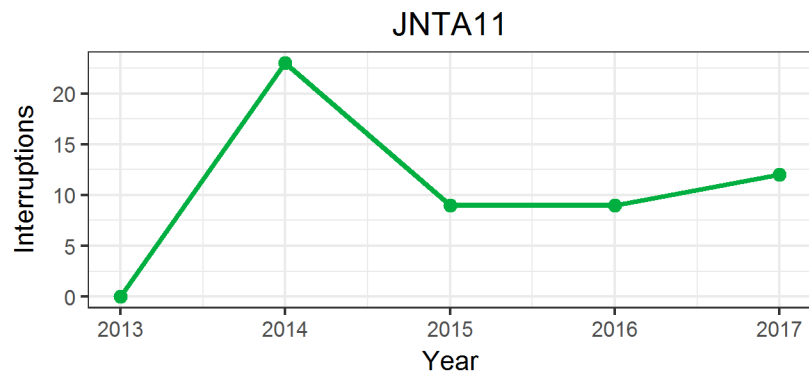
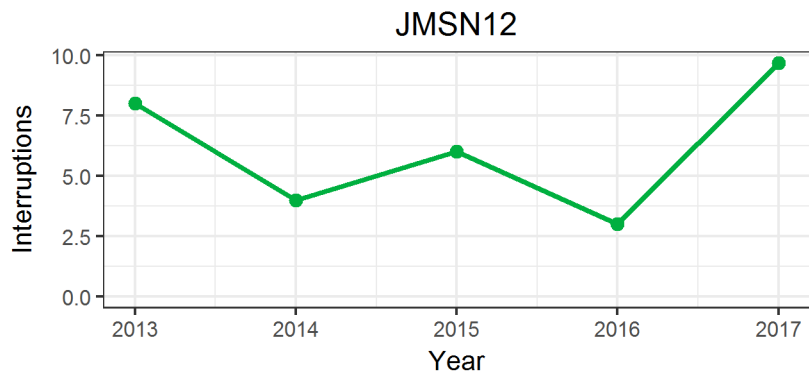
Table 8 Five Years of Circuit MAIFI_E

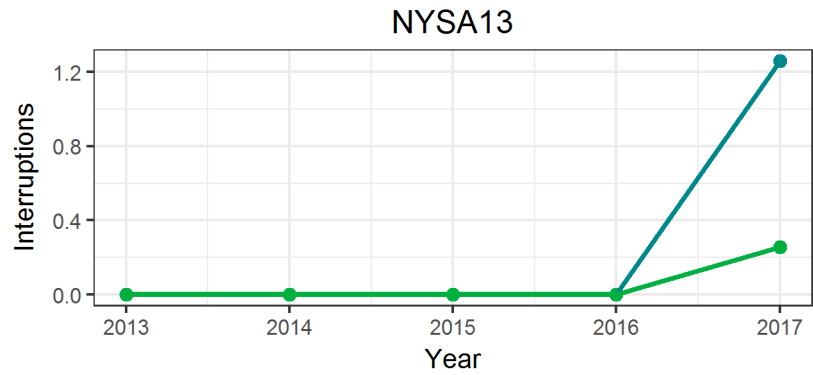
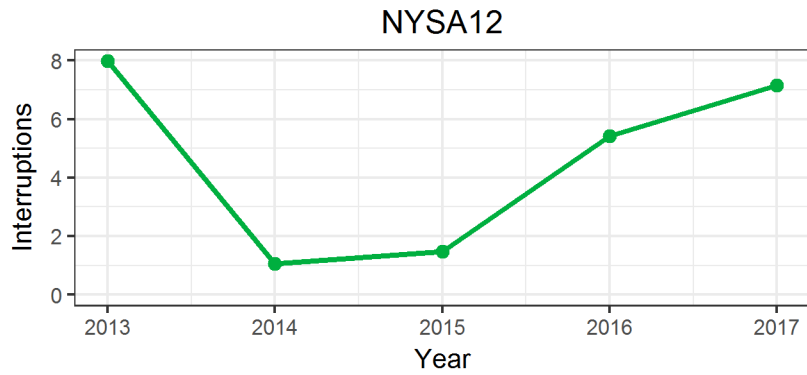
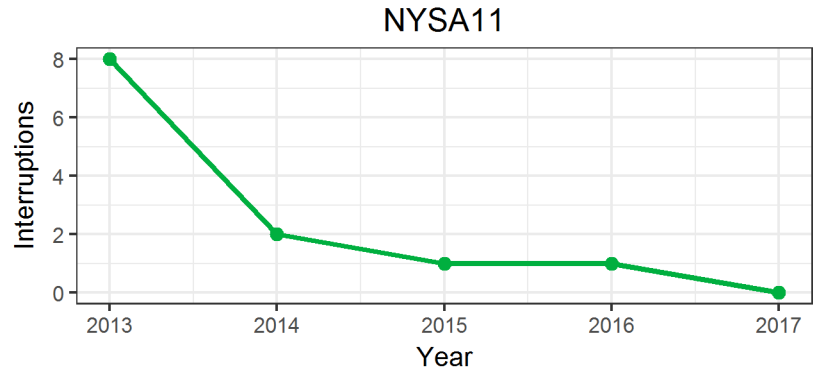
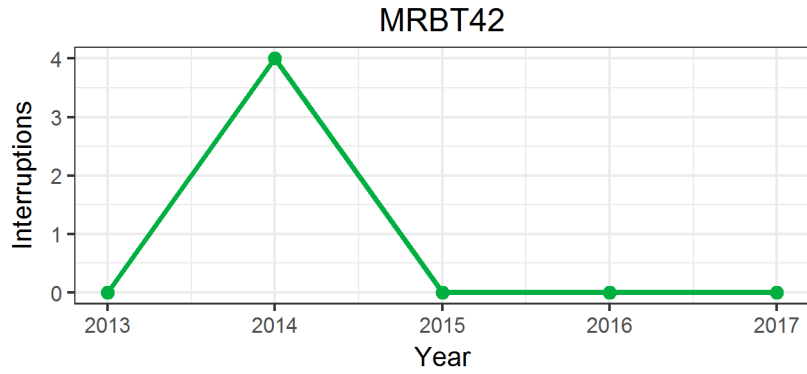
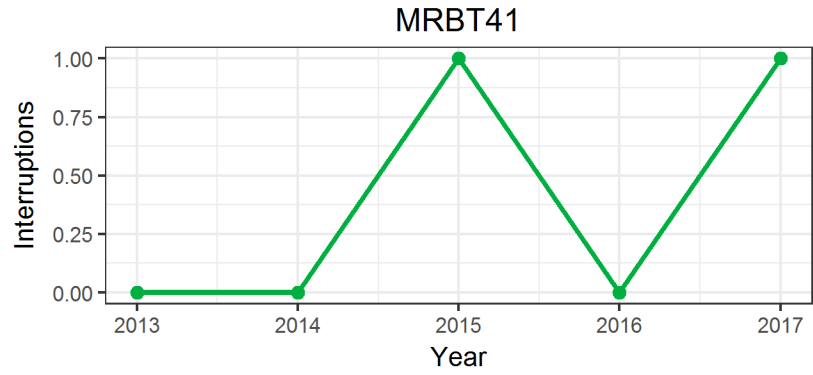
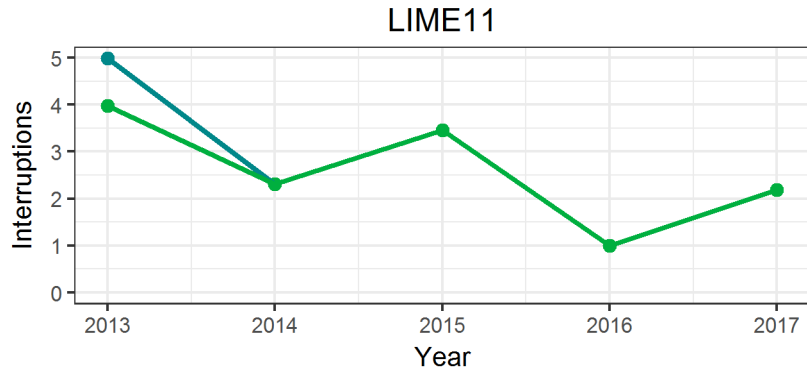


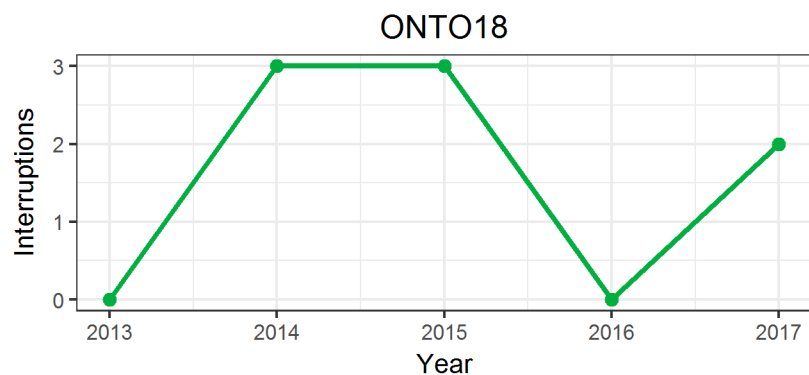
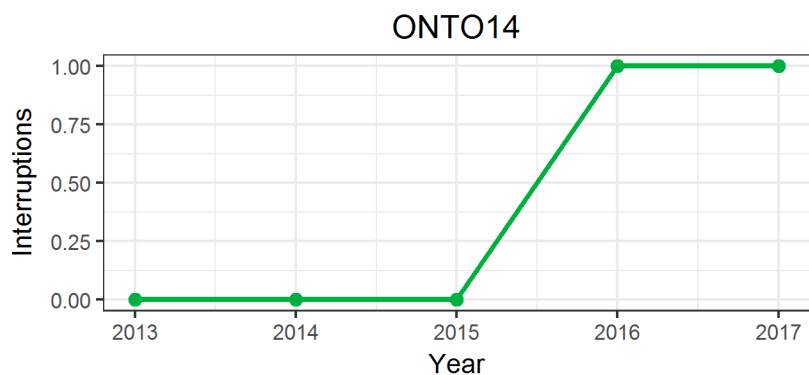
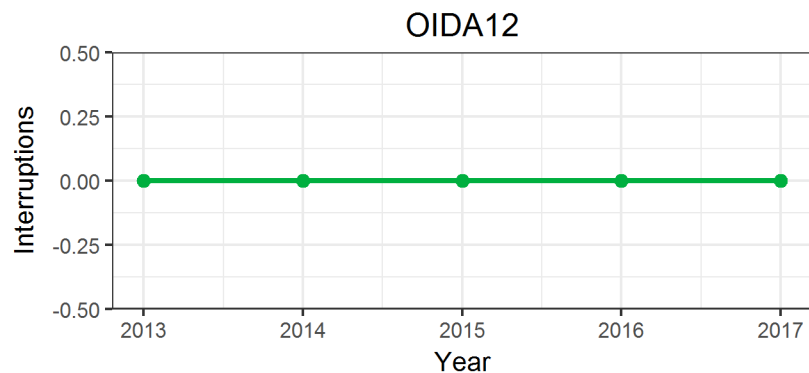
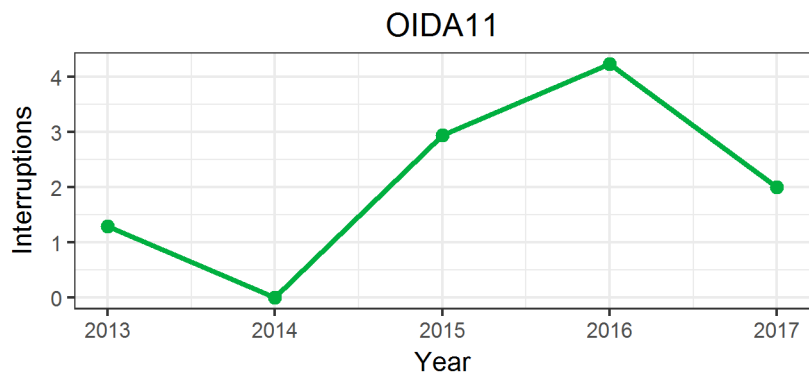
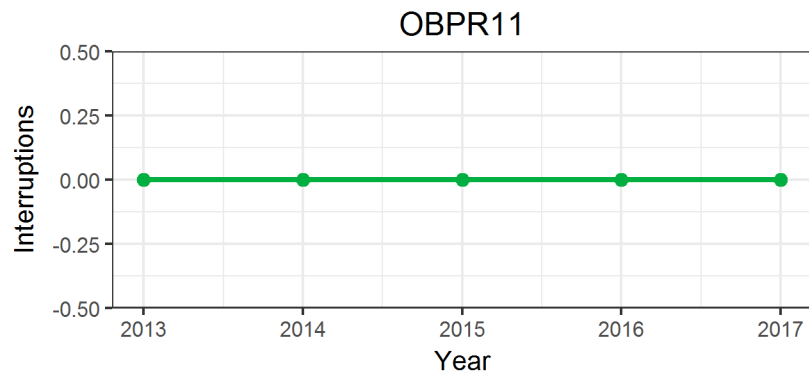
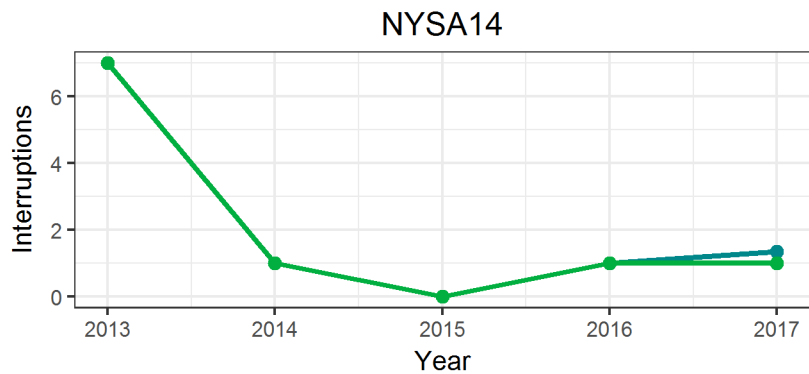


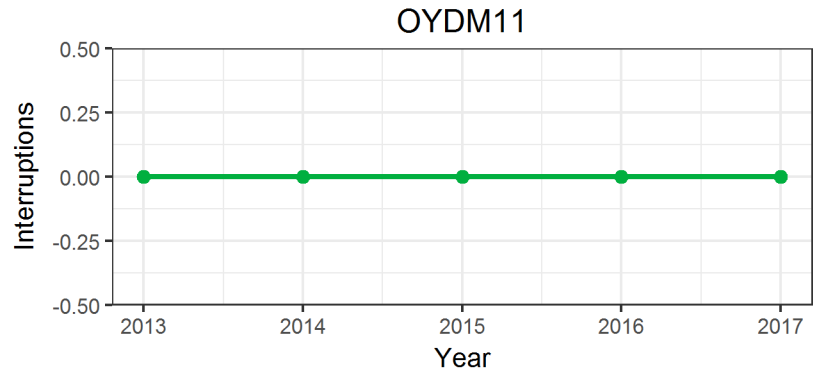
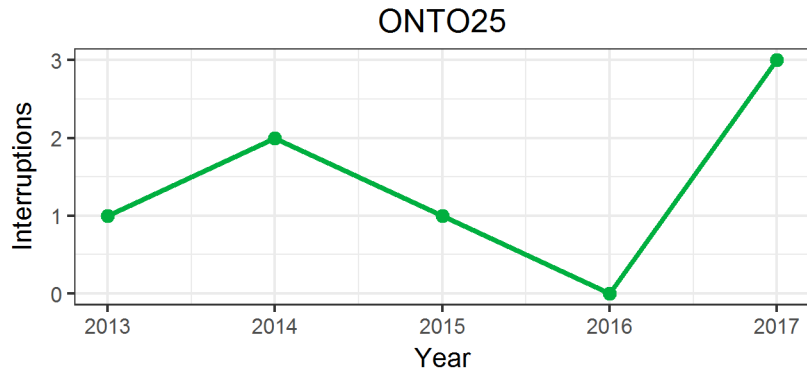
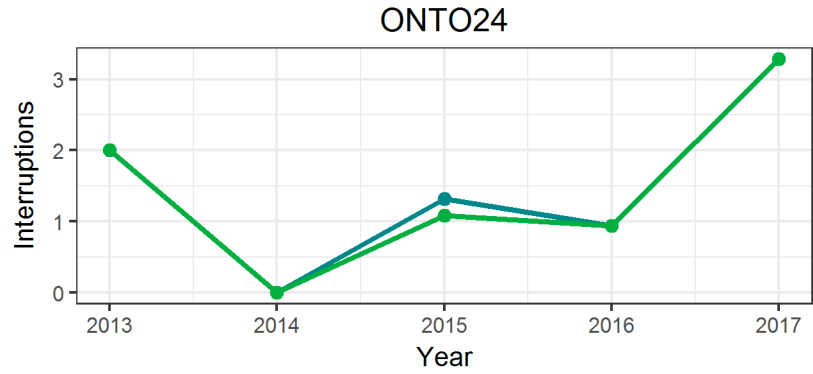
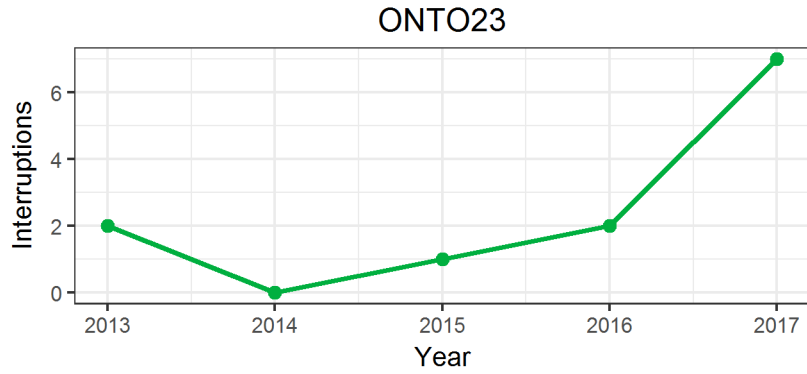
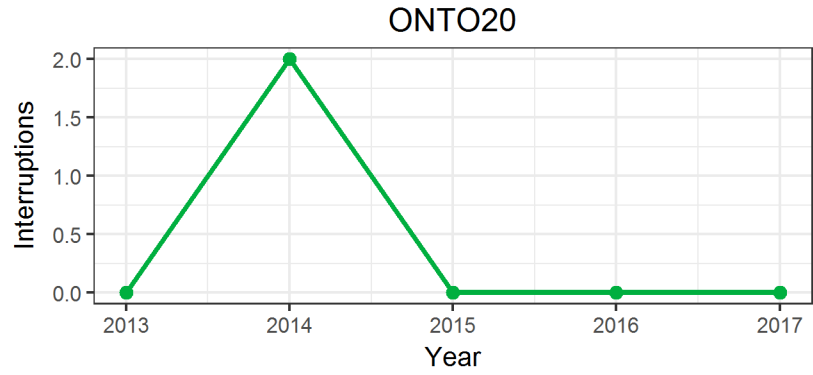
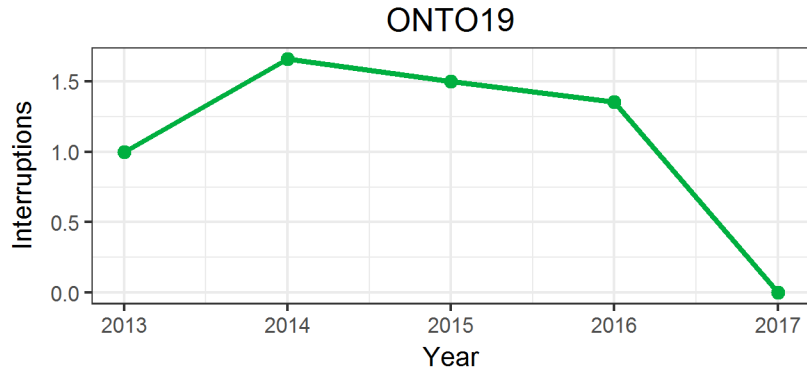


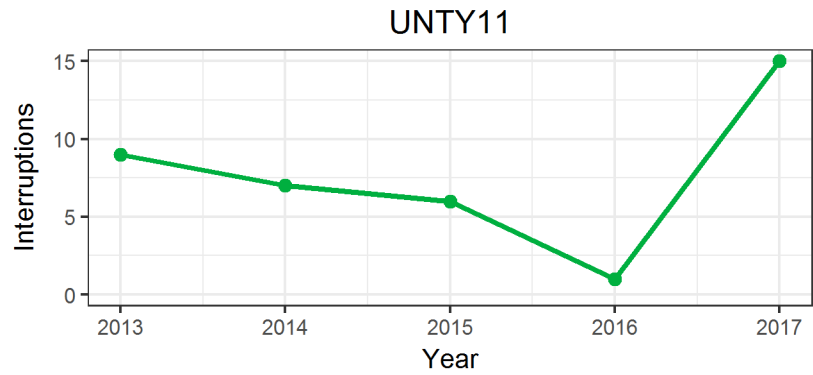
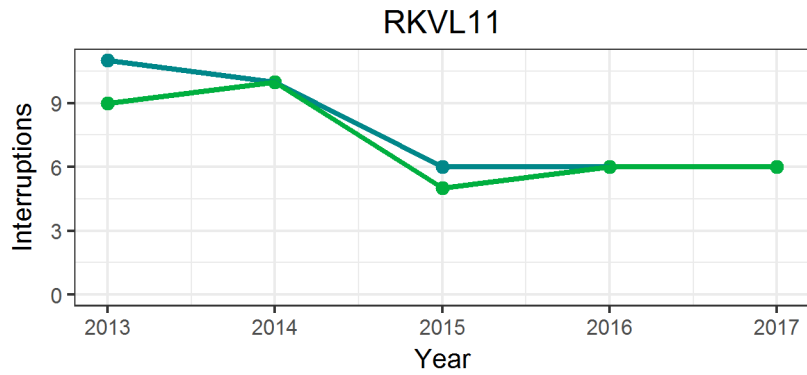
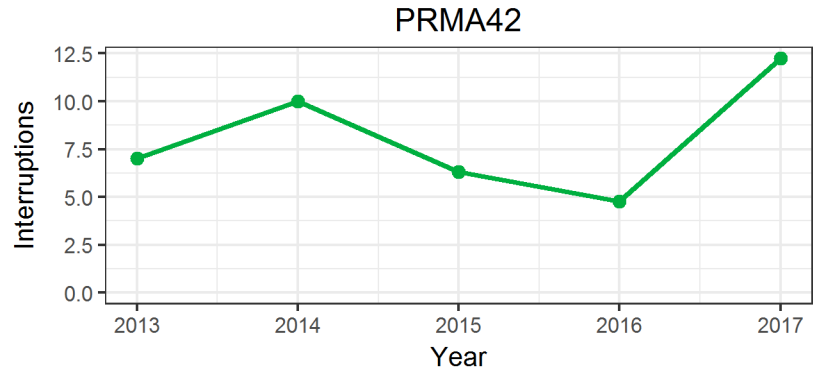
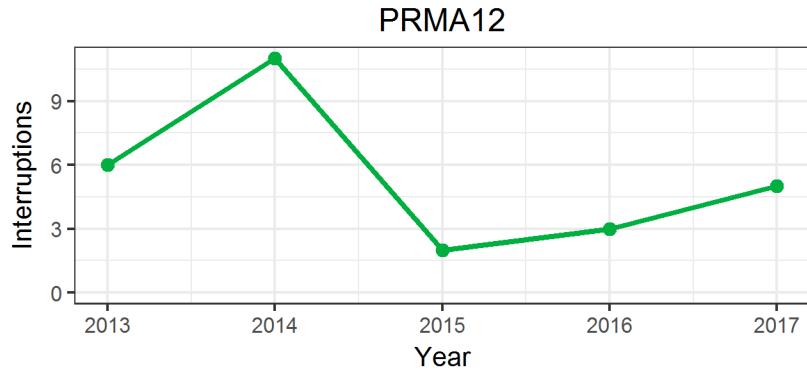
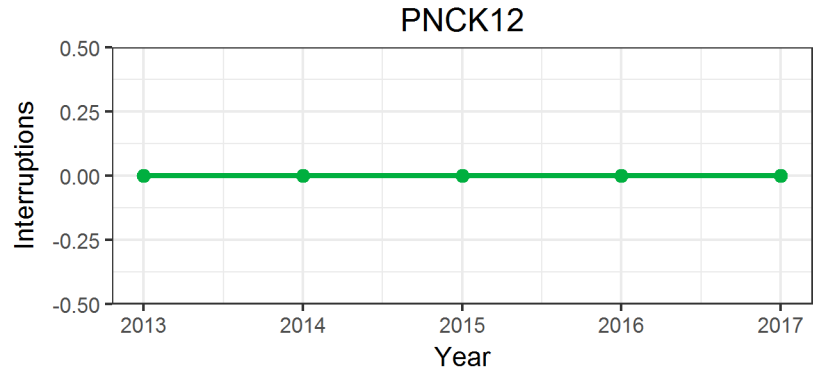
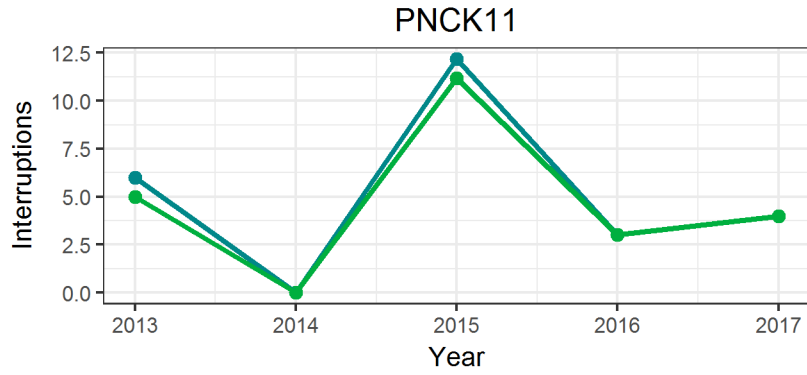


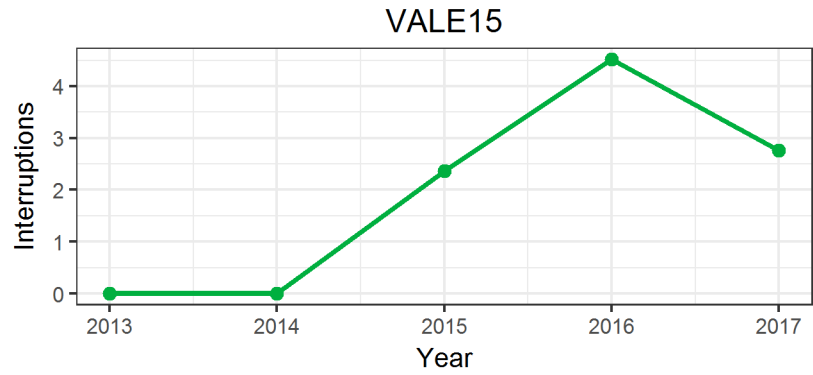
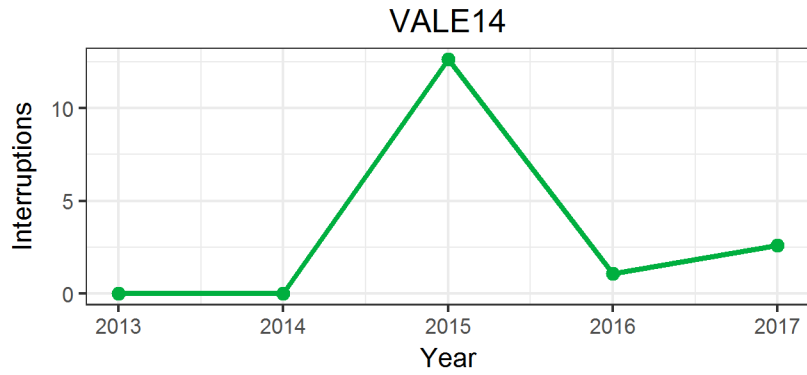
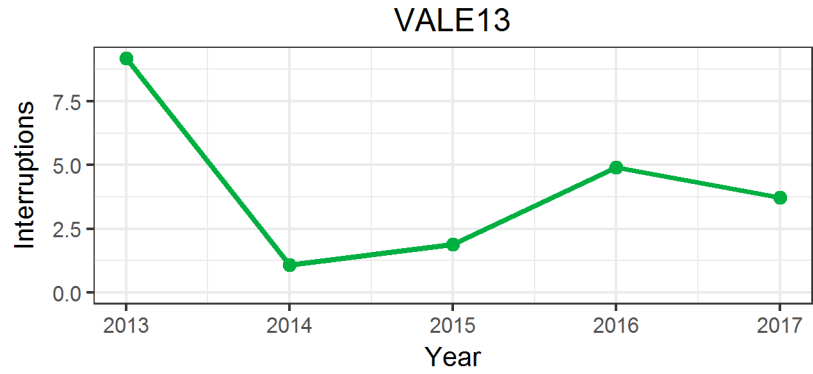
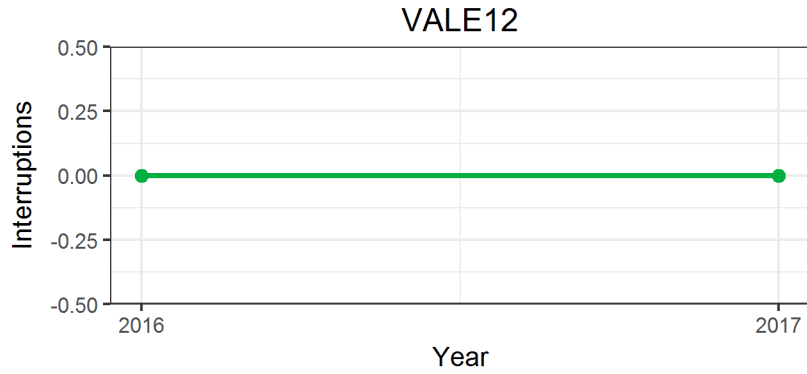
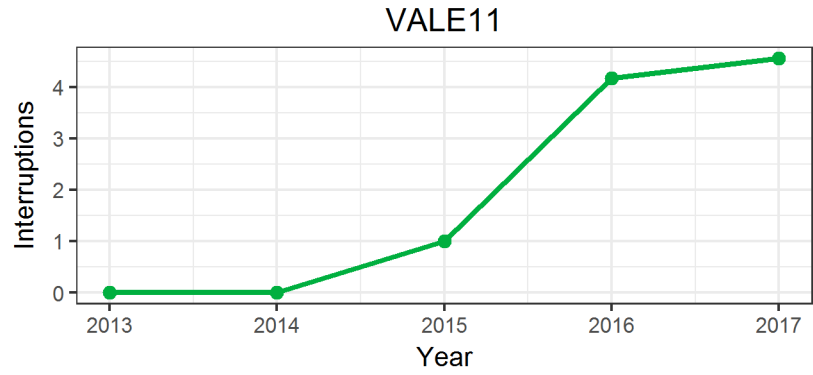
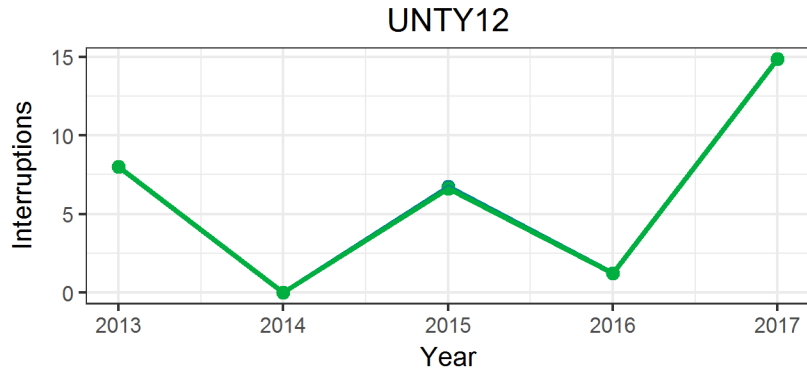












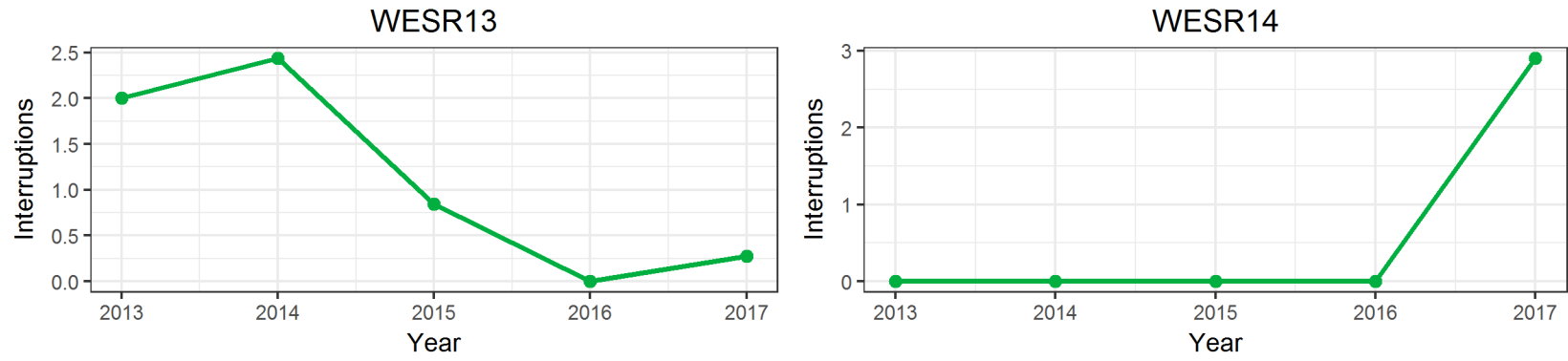


Figure 8 Five Years of Circuit MAIFIE

2017 Descending Indices by Circuit

Circuit	SAIDI	SAIDI MedEx	Circuit	SAIFI	SAIFI MedEx	Circuit	MAIFI _E	MAIFI _E MedEx
LIME11	27.62	27.62	UNTY12	6.81	6.81	DRKE11	18.00	18.00
UNTY11	27.58	27.58	UNTY11	6.21	6.21	HFVY11	15.57	15.57
HRPR12	21.23	21.23	ESTN11	4.67	4.67	UNTY11	15.00	15.00
UNTY12	17.21	17.21	PRMA42	4.60	3.60	UNTY12	14.85	14.85
ADRN12	17.14	11.51	ADRN12	3.84	2.83	JNTA12	14.13	14.13
DWSY11	15.18	15.18	JNVY31	3.66	3.66	PRMA42	12.23	12.23
JNVY31	14.50	14.50	WESR14	3.23	3.23	JNTA11	12.00	12.00
ESTN11	13.21	13.21	NYSA12	3.21	3.21	JNVY31	10.12	10.12
PRMA42	12.84	9.08	HRPR12	3.21	3.21	JMSN12	9.67	9.67
WESR14	12.55	12.55	PRMA12	3.00	2.33	HFVY12	9.15	9.15
MRBT41	11.96	11.96	DWSY11	2.87	2.87	HMDL12	8.23	8.23
JNVY11	11.30	11.30	ADRN11	2.85	1.85	CWVY11	8.00	8.00
JNVY12	10.75	10.75	DRKE11	2.46	2.46	DWSY11	7.47	7.47
ADRN11	8.60	3.03	LIME11	2.44	2.44	NYSA12	7.15	7.15
DRKE11	8.44	8.44	HFVY12	2.36	2.36	ONTO23	7.00	7.00
HRPR11	8.10	8.10	WESR13	2.34	2.34	CWVY12	6.65	6.65
CWVY12	7.78	7.78	JNVY11	2.26	2.26	ADRN12	6.55	6.55
HOLY12	7.60	7.60	JNVY12	2.26	2.26	JNVY11	6.32	6.16
JNTA12	7.56	7.56	RKVL11	2.25	2.25	RKVL11	6.00	6.00
PRMA12	7.22	4.65	ONTO23	2.17	2.17	HRPR12	5.42	5.42
NYSA12	6.95	6.95	OIDA12	2.00	2.00	HOPE11	5.00	5.00
JNTA11	6.65	6.65	CARO12	1.87	1.87	JNVY12	5.00	5.00
ONTO24	5.23	5.23	HFVY11	1.71	1.71	PRMA12	5.00	5.00
RKVL11	4.61	4.61	ONTO24	1.69	1.69	CARO12	4.66	4.66
HFVY12	4.50	4.50	HMDL12	1.64	1.64	VALE11	4.55	4.55
ONTO23	4.07	4.07	VALE11	1.59	1.59	CARO11	4.42	4.42
VALE13	3.68	3.68	HRPR11	1.49	1.49	HOLY12	4.00	4.00
OYDM11	3.48	3.48	DUKE11	1.48	1.48	PNCK11	4.00	4.00
WESR13	3.21	3.21	HOLY12	1.43	1.43	ADRN11	3.84	3.84
PNCK12	3.17	3.17	VALE15	1.37	1.37	VALE13	3.73	3.73
HFVY11	2.94	2.94	HOPE11	1.28	1.28	HOLY13	3.72	3.72
VALE14	2.93	2.93	CWVY12	1.27	1.27	ONTO24	3.28	3.28
OIDA12	2.80	2.80	JNTA12	1.23	1.23	HRPR11	3.00	3.00
HMDL12	2.32	2.32	MRBT41	1.22	1.22	ONTO25	3.00	3.00
JMSN12	2.07	2.07	CWVY11	1.20	1.20	WESR14	2.90	2.90
HOPE11	1.87	1.87	VALE13	1.18	1.18	VALE15	2.76	2.76
VALE15	1.82	1.82	JMSN12	1.16	1.16	VALE14	2.61	2.61
CARO12	1.56	1.56	ONTO14	1.09	1.09	LIME11	2.19	2.19
MRBT42	1.54	1.54	JNTA11	1.00	1.00	DUKE11	2.00	2.00
CARO11	1.49	1.49	MRBT42	1.00	1.00	HGTN12	2.00	2.00
DUKE11	1.34	1.34	PNCK12	1.00	1.00	OIDA11	2.00	2.00
HOLY11	1.23	1.23	PNCK11	0.96	0.96	ONTO18	2.00	2.00
OIDA11	1.12	1.12	OYDM11	0.93	0.93	NYSA14	1.35	1.00
VALE11	1.09	1.09	VALE14	0.91	0.91	NYSA13	1.26	0.26
VALE12	1.07	1.07	OIDA11	0.74	0.74	JMSN11	1.11	1.11
CWVY11	0.74	0.74	CARO11	0.62	0.62	HGTN11	1.00	1.00
ONTO19	0.69	0.69	VALE12	0.50	0.50	MRBT41	1.00	1.00
ONTO20	0.64	0.64	JMSN11	0.37	0.37	ONTO14	1.00	1.00
JMSN11	0.60	0.60	HGTN11	0.34	0.34	WESR13	0.27	0.27
ONTO14	0.54	0.54	ONTO19	0.29	0.29	CARO13	0.00	0.00
HGTN12	0.47	0.47	HOLY11	0.26	0.26	ESTN11	0.00	0.00
ONTO25	0.37	0.37	HGTN12	0.24	0.24	HCSU11	0.00	0.00
NYSA11	0.37	0.37	NYSA11	0.19	0.19	HOLY11	0.00	0.00
NYSA13	0.27	0.27	ONTO20	0.17	0.17	MRBT42	0.00	0.00
PNCK11	0.26	0.26	NYSA13	0.16	0.16	NYSA11	0.00	0.00
HGTN11	0.21	0.21	ONTO25	0.13	0.13	OBPR11	0.00	0.00
HOLY13	0.19	0.19	CARO13	0.11	0.11	OIDA12	0.00	0.00
CARO13	0.17	0.17	HOLY13	0.11	0.11	ONTO19	0.00	0.00
NYSA14	0.12	0.12	ONTO18	0.06	0.06	ONTO20	0.00	0.00
ONTO18	0.12	0.12	NYSA14	0.05	0.05	OYDM11	0.00	0.00
HCSU11	0.00	0.00	HCSU11	0.00	0.00	PNCK12	0.00	0.00
OBPR11	0.00	0.00	OBPR11	0.00	0.00	VALE12	0.00	0.00

Table 9 2017 Descending Indices by Circuit

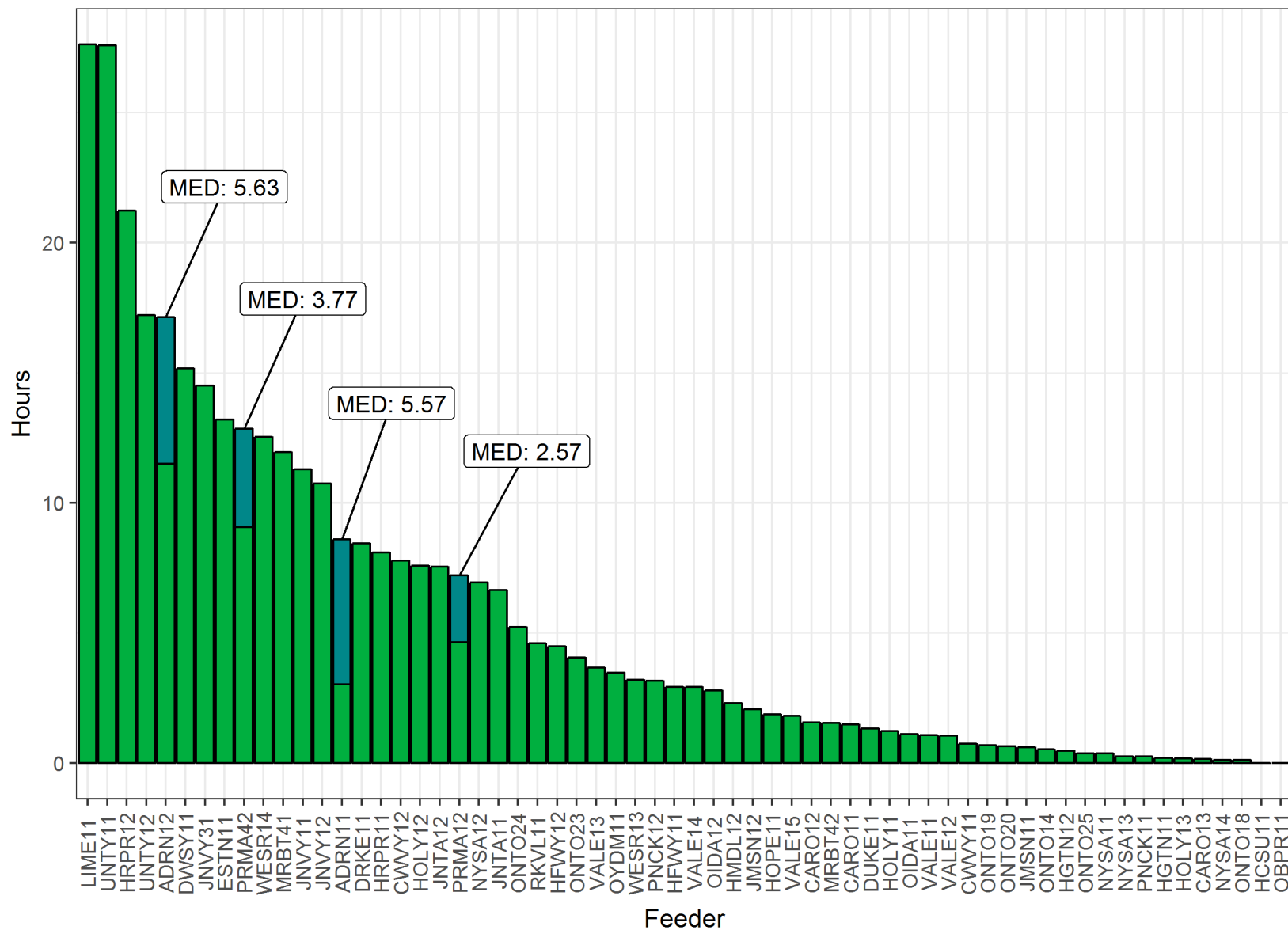


Figure 9 2017 Descending SAIDI by Circuit

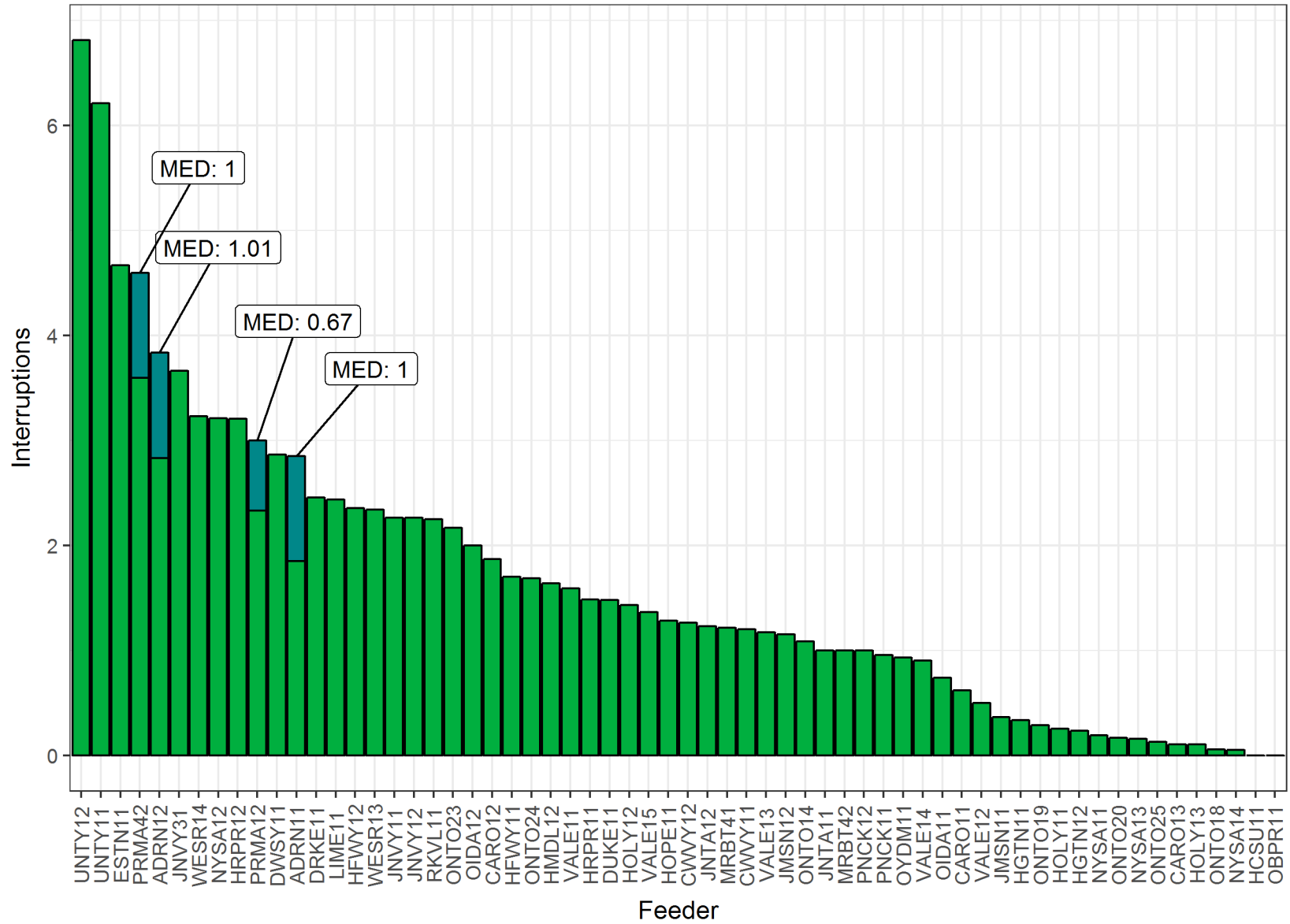


Figure 10 2017 Descending SAIFI by Circuit

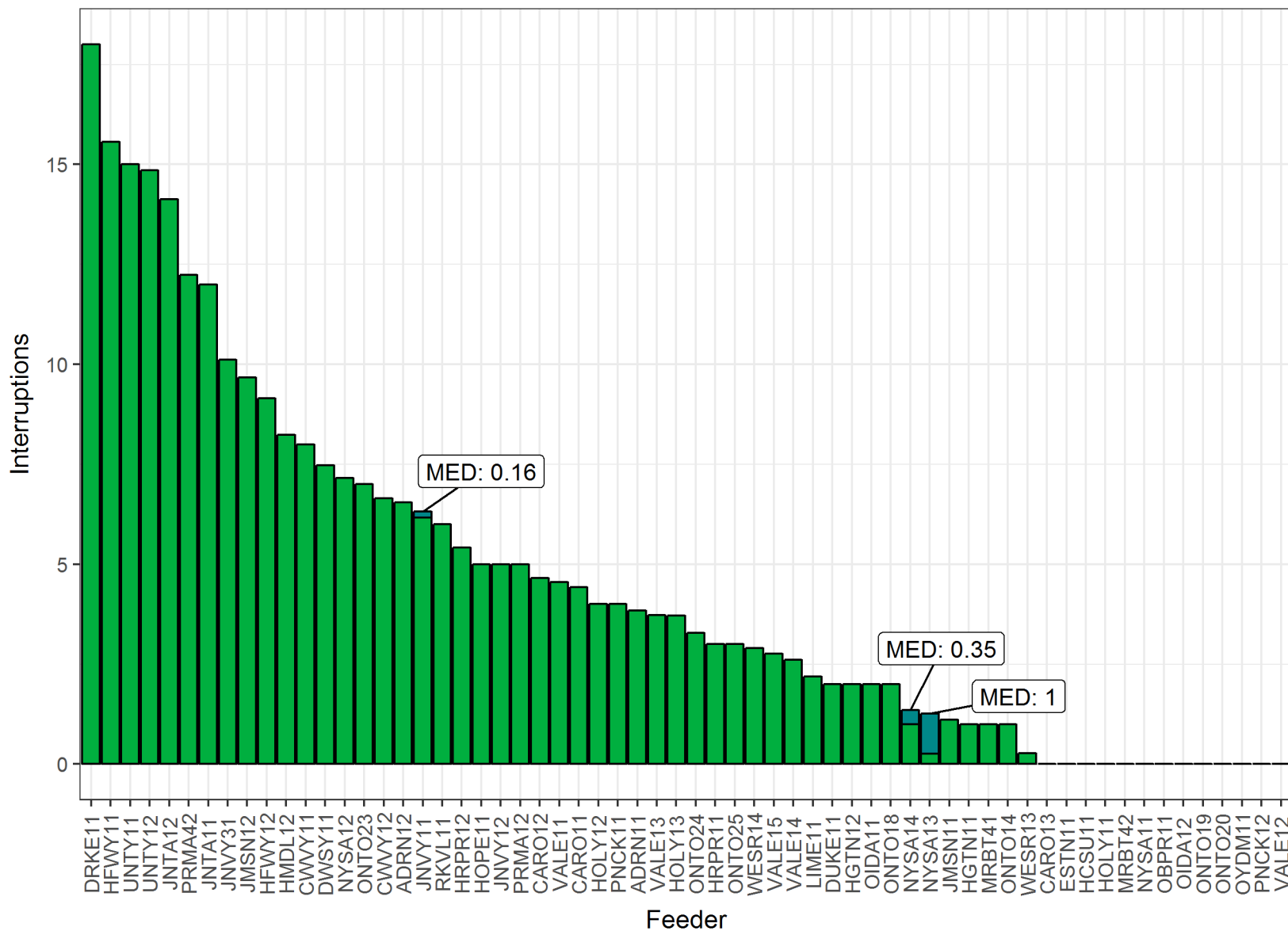


Figure 11 2017 Descending MAIFIE by Circuit

APPENDIX

Circuit Reference Information

Circuit	Substation	Operating Area	Voltage (kV)	Customers*
ADRN11	Adrian	Western	12.5	379
ADRN12	Adrian	Western	12.5	587
CARO11	Cairo	Western	12.5	1,213
CARO12	Cairo	Western	12.5	93
CARO13	Cairo	Western	12.5	730
CWVY11	Cow Valley	Western	12.5	44
CWVY12	Cow Valley	Western	12.5	112
DRKE11	Durkee	Western	12.5	167
DUKE11	Duke	Western	12.5	27
DWSY11	Drewsey	Western	12.5	181
ESTN11	Easton	Western	12.5	3
HCSU11	Hells Canyon	Western	12.5	2
HFVY11	Halfway	Western	12.5	757
HFVY12	Halfway	Western	12.5	539
HGTN11	Huntington	Western	12.5	74
HGTN12	Huntington	Western	12.5	296
HMDL12	Homedale	Canyon	12.5	147
HOLY11	Holly	Western	12.5	180
HOLY12	Holly	Western	12.5	76
HOLY13	Holly	Western	12.5	158
HOPE11	Hope	Western	12.5	151
HRPR11	Harper	Western	12.5	105
HRPR12	Harper	Western	12.5	182
JMSN11	Jamieson	Western	12.5	392
JMSN12	Jamieson	Western	12.5	244
JNTA11	Juntura	Western	12.5	61
JNTA12	Juntura	Western	12.5	52
JNVY11	Jordan Valley	Canyon	12.5	87
JNVY12	Jordan Valley	Canyon	12.5	87
JNVY31	Jordan Valley	Canyon	25	333
LIME11	Lime	Western	12.5	116
MRBT41	Malheur Butte	Western	34.5	32
MRBT42	Malheur Butte	Western	34.5	10
NYSA11	Nyssa	Western	12.5	835
NYSA12	Nyssa	Western	12.5	307
NYSA13	Nyssa	Western	12.5	712
NYSA14	Nyssa	Western	12.5	247
OBPR11	Oxbow	Western	12.5	1
OIDA11	Ore-Ida	Western	12.5	625
OIDA12	Ore-Ida	Western	12.5	1
ONTO14	Ontario	Western	12.5	34
ONTO18	Ontario	Western	12.5	843
ONTO19	Ontario	Western	12.5	1,796
ONTO20	Ontario	Western	12.5	1,194
ONTO23	Ontario	Western	12.5	47
ONTO24	Ontario	Western	12.5	674
ONTO25	Ontario	Western	12.5	493
OYDM11	Owyhee Dam	Western	12.5	15
PNCK11	Pine Creek	Western	12.5	99
PNCK12	Pine Creek	Western	12.5	2
PRMA12	Parma	Western	12.5	3
PRMA42	Parma	Western	34.5	183
RKVL11	Rockville	Canyon	12.5	28
UNTY11	Unity	Western	12.5	146
UNTY12	Unity	Western	12.5	226
VALE11	Vale	Western	12.5	1,029
VALE12	Vale	Western	12.5	52
VALE13	Vale	Western	12.5	554
VALE14	Vale	Western	12.5	300
VALE15	Vale	Western	12.5	461
WESR13	Weiser	Western	12.5	193
WESR14	Weiser	Western	12.5	30

Table 10 Circuit Reference Information

*Some circuits have customers in Idaho and Oregon.

*The counts in this column are for Oregon customers only as of 12/31/2017.

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
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%
2013	2,113.58	93.31	2,206.88	688.66	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.

2017 Major Event Day System Summary

Date	Cause	Customers	CMI	CI	SAIDI (Minutes)	SAIFI	CAIDI (Minutes)
1/7/2017	Loading/Unloading (Snow, Ice)	18,789	367,856	1,156	19.58	0.06	318.21

Table 12 2017 MED System Summary

2017 Major Event Day Feeder Summary

Date	Feeder	Customers	CMI	CI	SAIDI (Minutes)	SAIFI	CAIDI (Minutes)
1/7/2017	ADRN11	380	127,300	380	335.00	1.00	335.00
1/7/2017	ADRN12	591	198,576	591	336.00	1.00	336.00
1/7/2017	PRMA12	2	462	2	231.00	1.00	231.00
1/7/2017	PRMA42	183	41,358	183	226.00	1.00	226.00

Table 13 2017 MED Feeder Summary

Five Years of Major Event Days

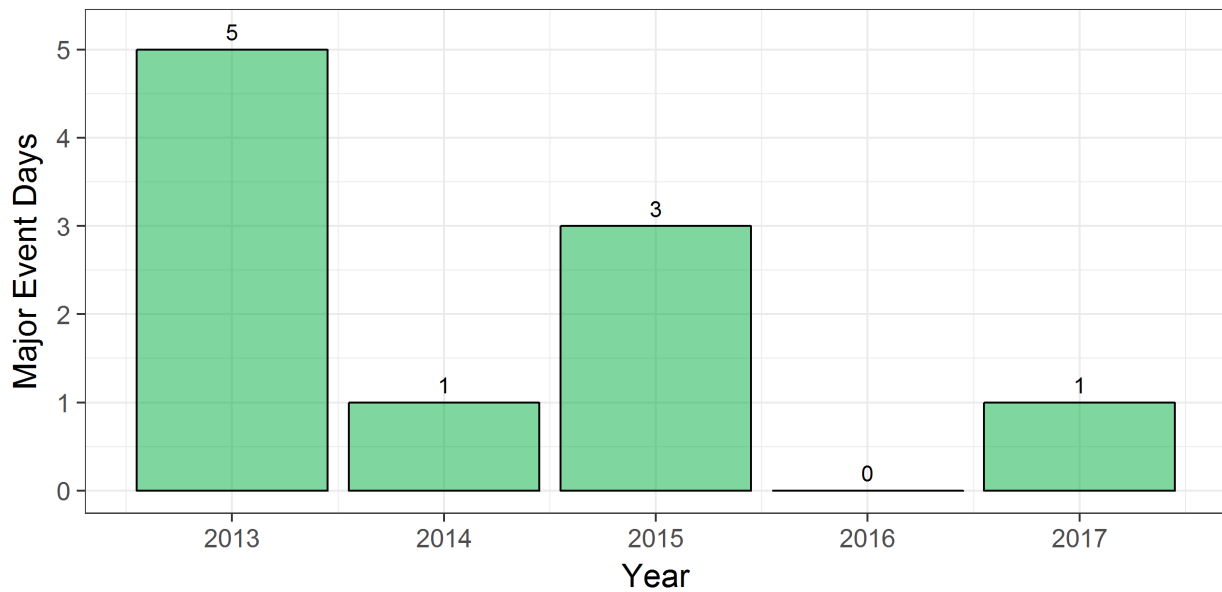


Figure 12 Five Years of MEDs

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

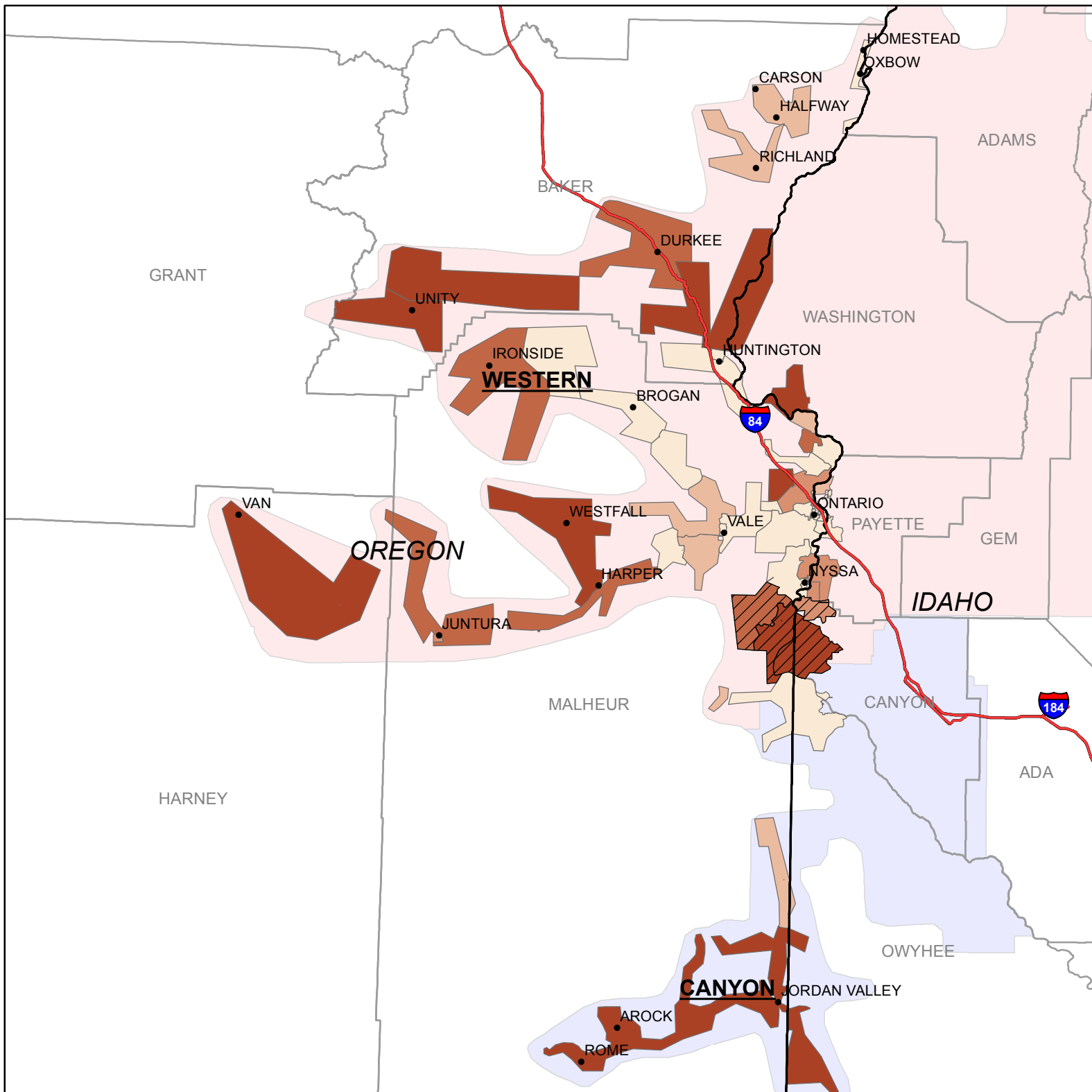
Table 14 Cause Category Translation

*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






See attached maps.

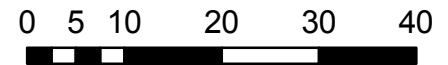
2017 SAIDI With MED Oregon Area



 MED Feeders

SAIDI

-  0.0 - 2.5
-  2.5 - 5.0
-  5.0 - 7.5
-  7.5 - 10.0
-  10.0+

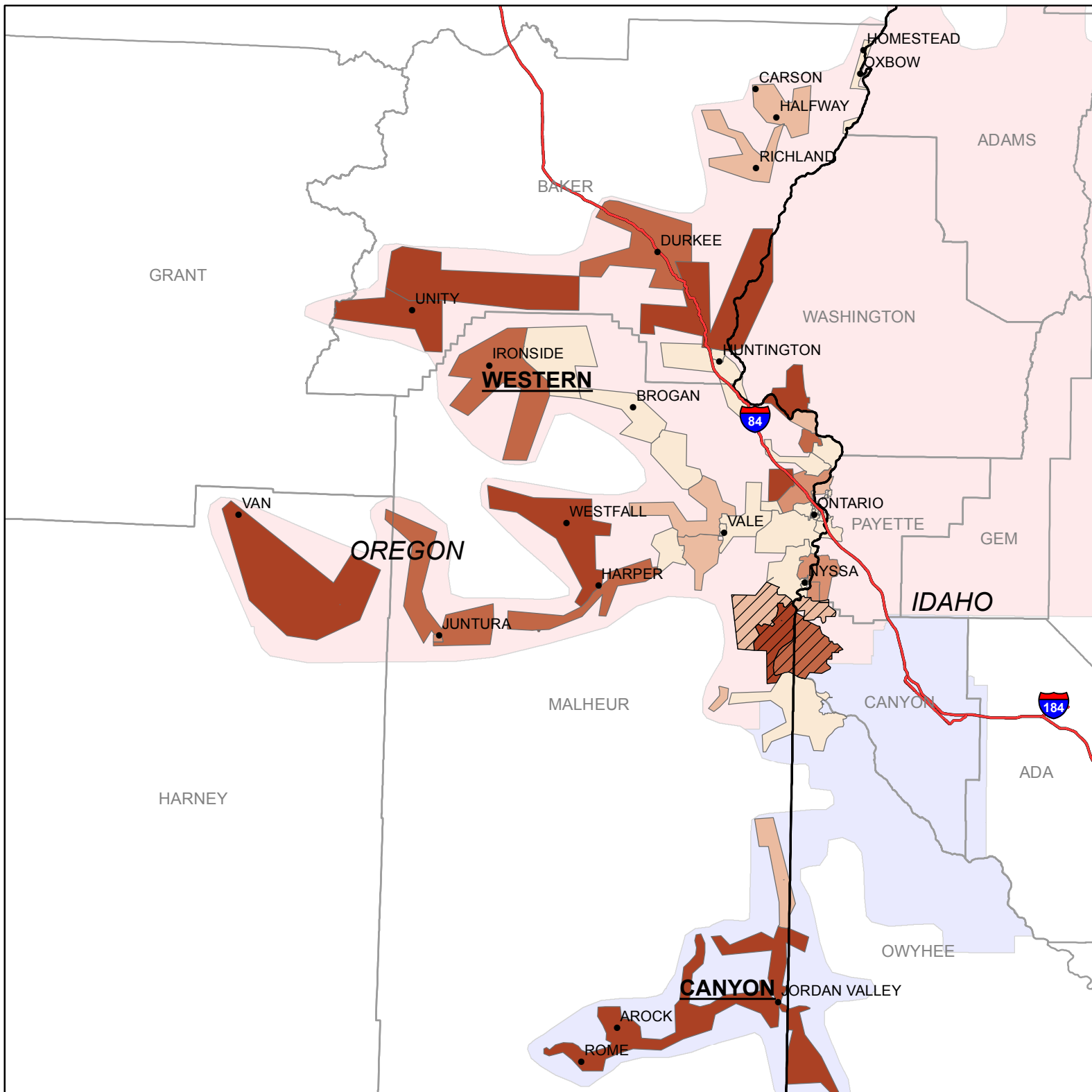


Miles

2/26/2018








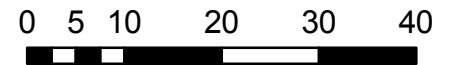
2017 SAIDI Without MED Oregon Area



 MED Feeders

SAIDI MedEx

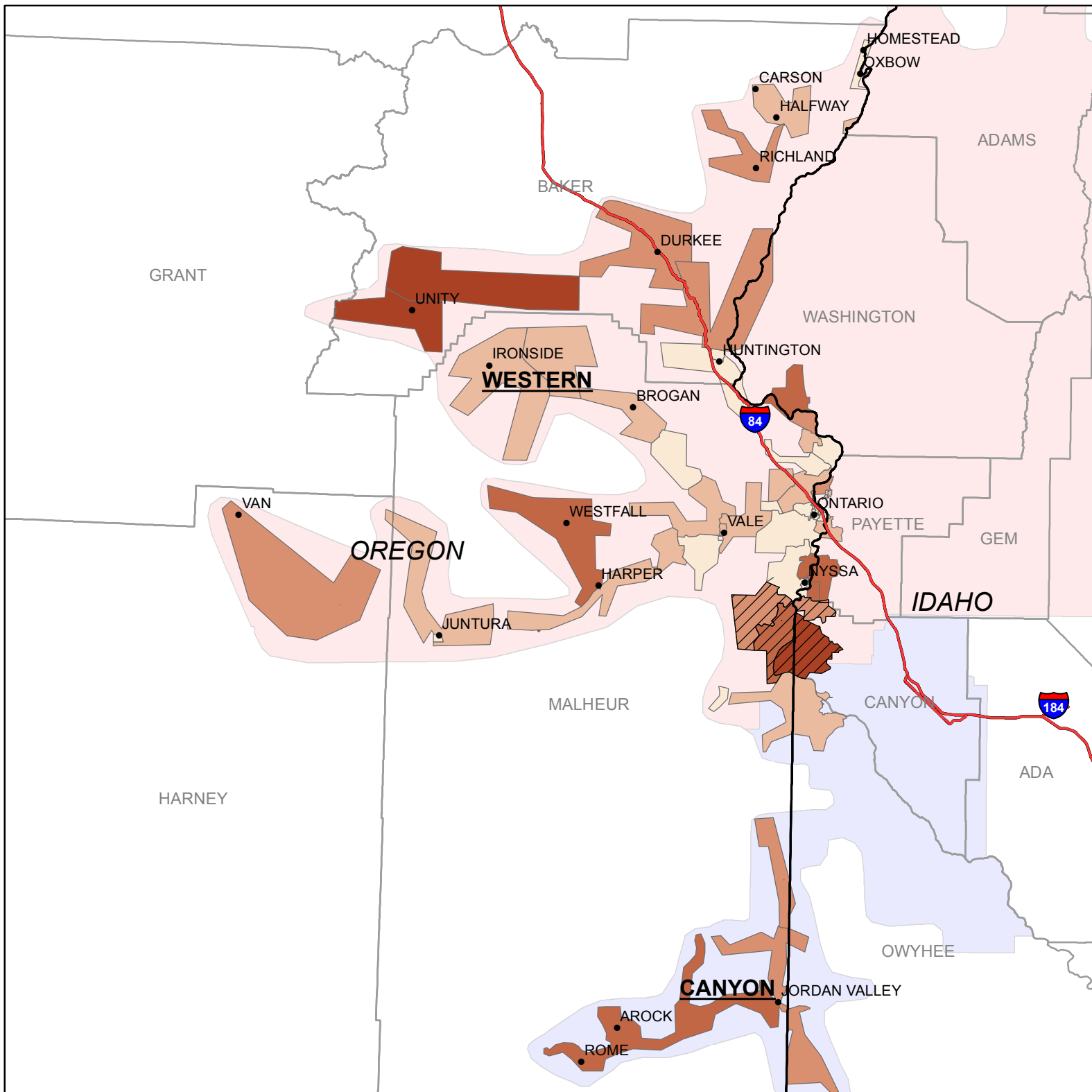
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-  2.5 - 5.0
-  5.0 - 7.5
-  7.5 - 10.0
-  10.0+



Miles

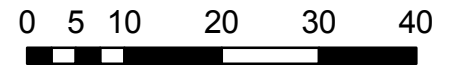
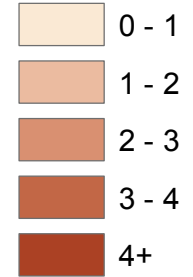
2/26/2018

2017 SAIFI With MED Oregon Area



 MED Feeders

SAIFI

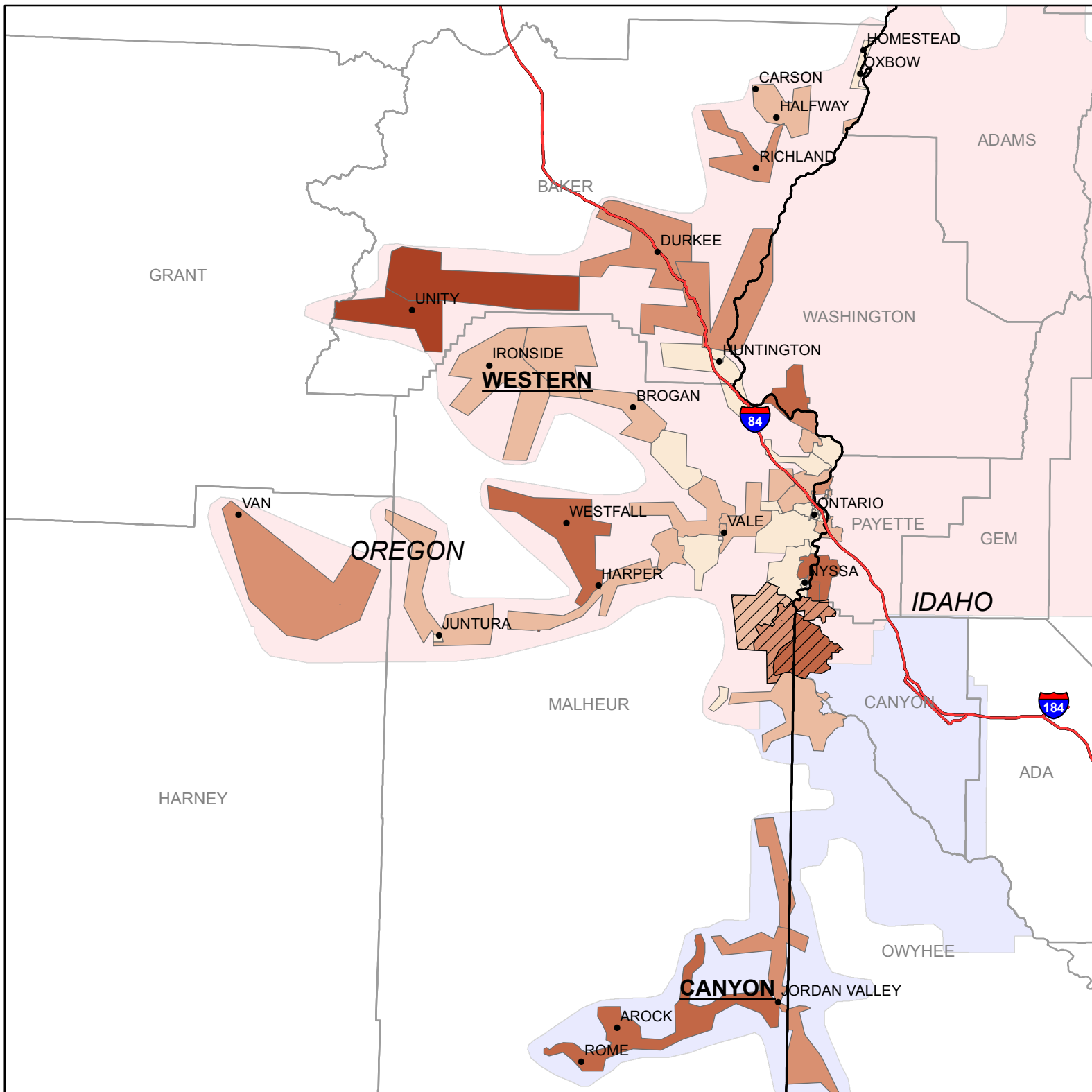


Miles

2/26/2018

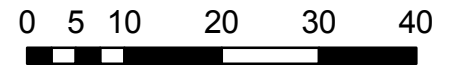
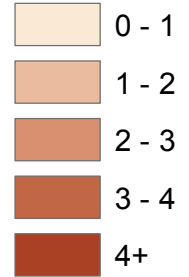


2017 SAIFI Without MED Oregon Area



 MED Feeders

SAIFI MedEx

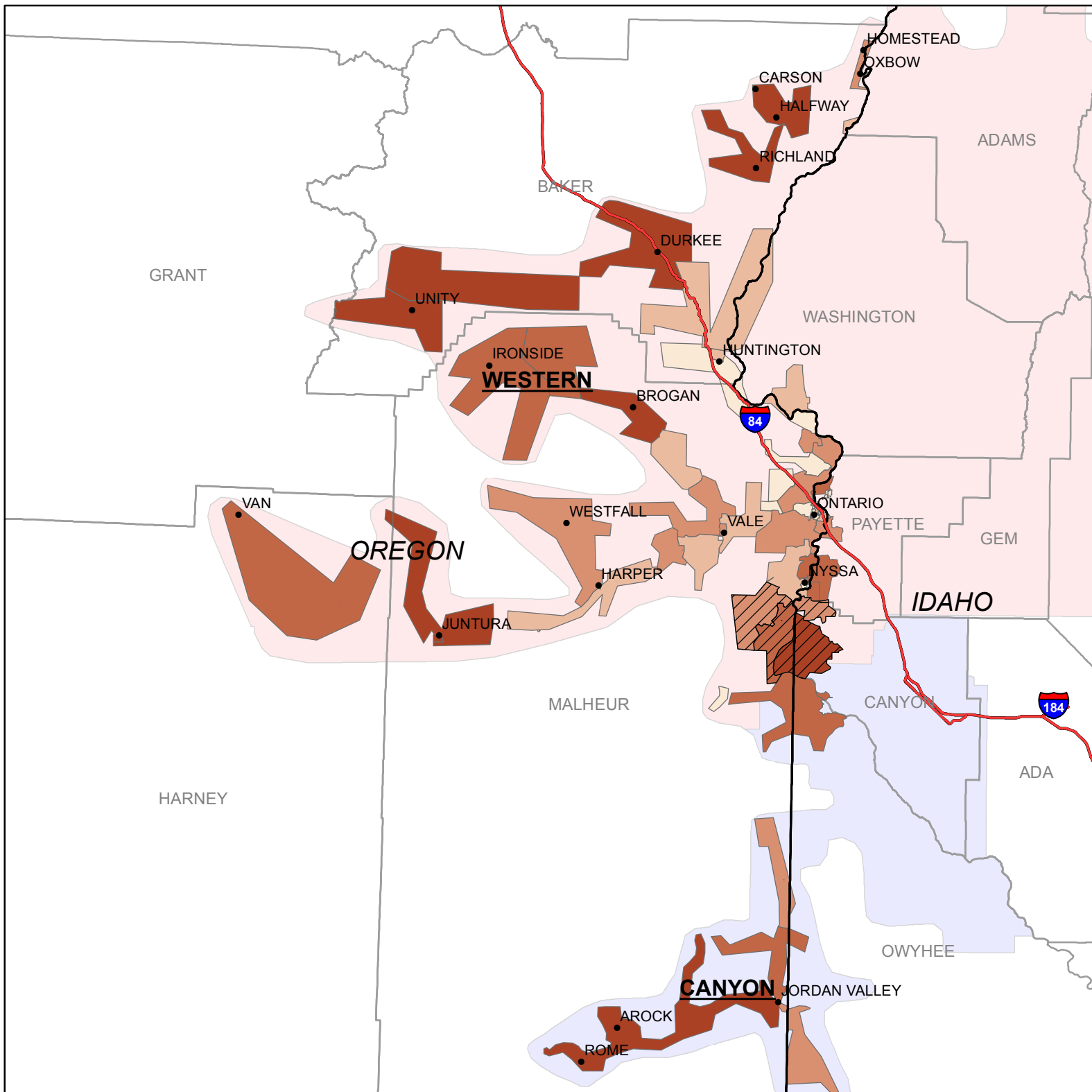


Miles

2/26/2018

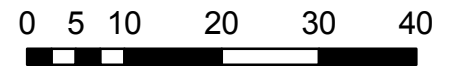
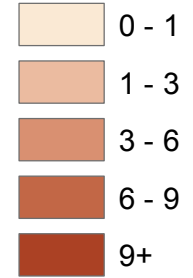


2017 MAIFIE With MED Oregon Area



 MED Feeders

MAIFIE

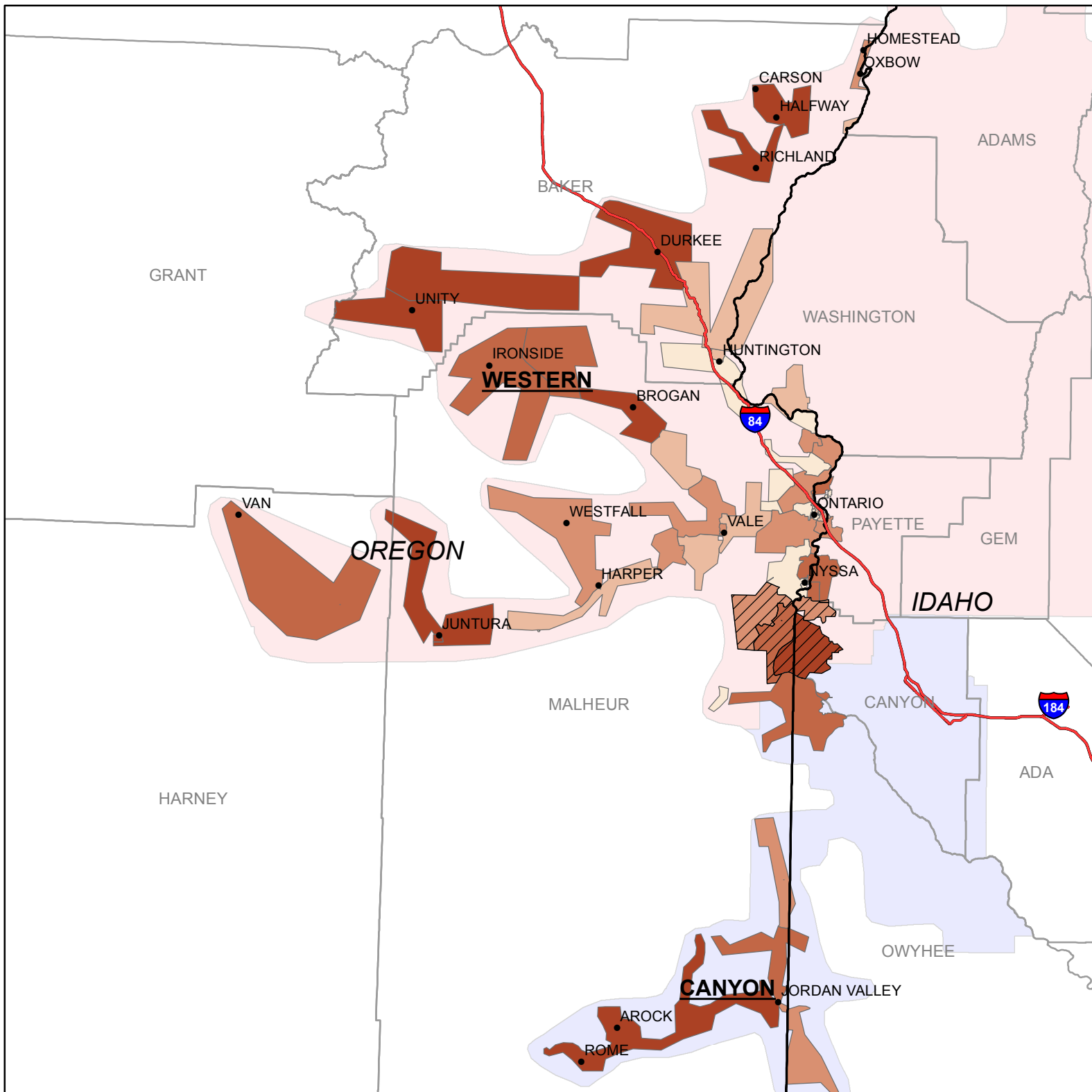


Miles

2/26/2018








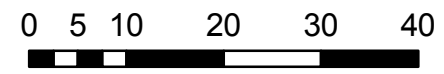
2017 MAIFIE Without MED Oregon Area



 MED Feeders

MAIFIE MedEX

-  0 - 1
-  1 - 3
-  3 - 6
-  6 - 9
-  9+



Miles

2/26/2018

