Appendix S1 for:

Pathogen surveillance and epidemiology in endangered Peninsular bighorn sheep (*Ovis canadensis nelsoni*)

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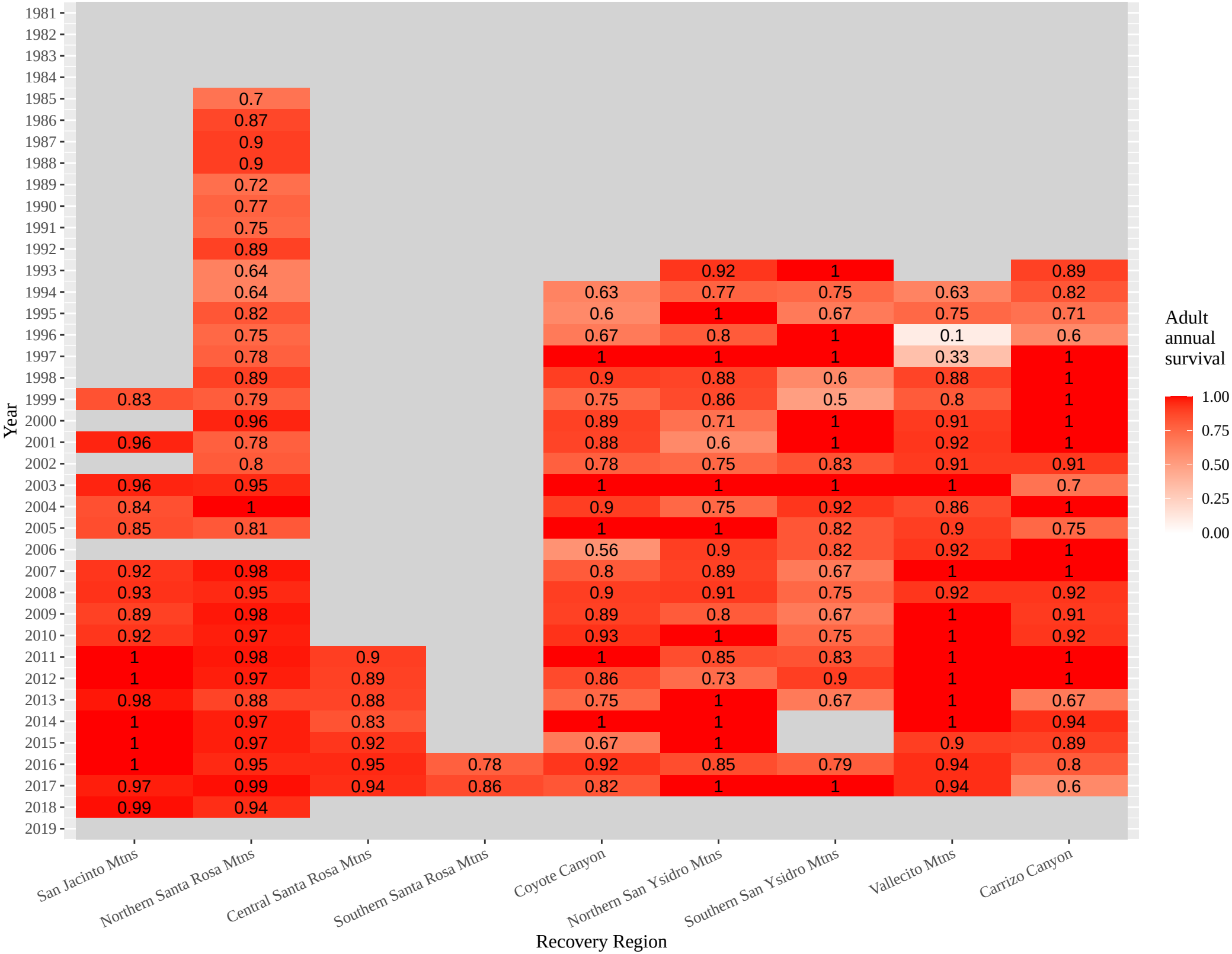
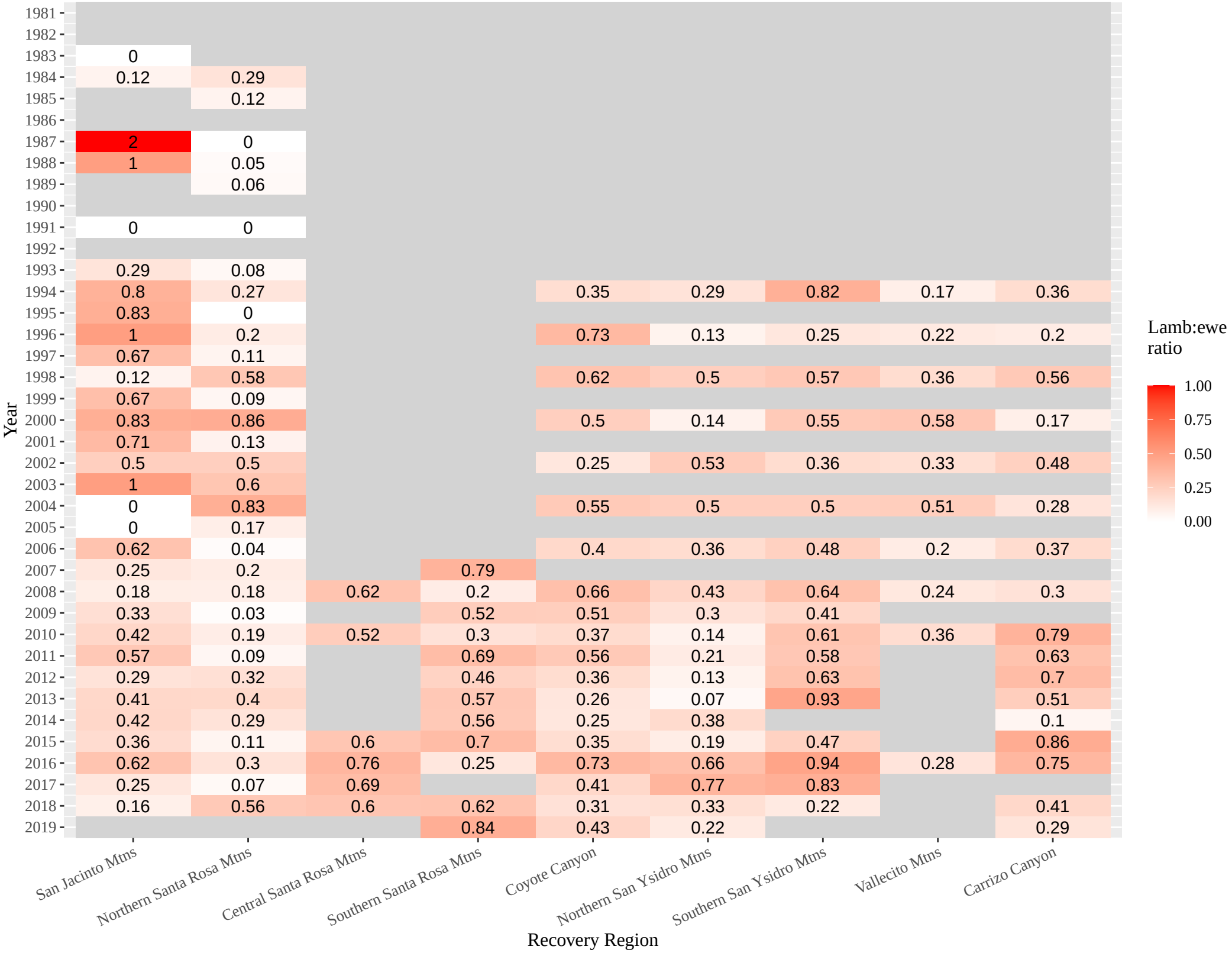
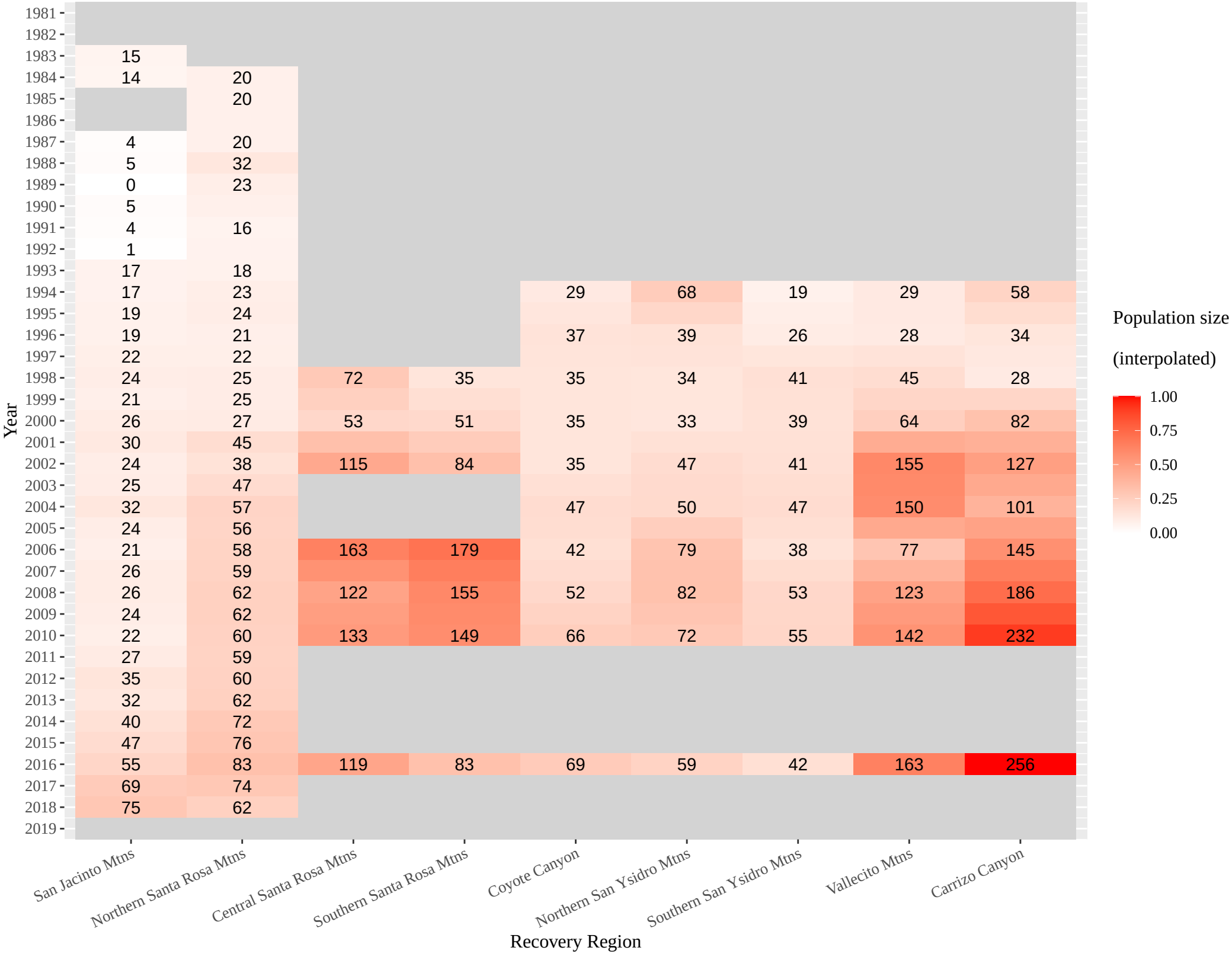
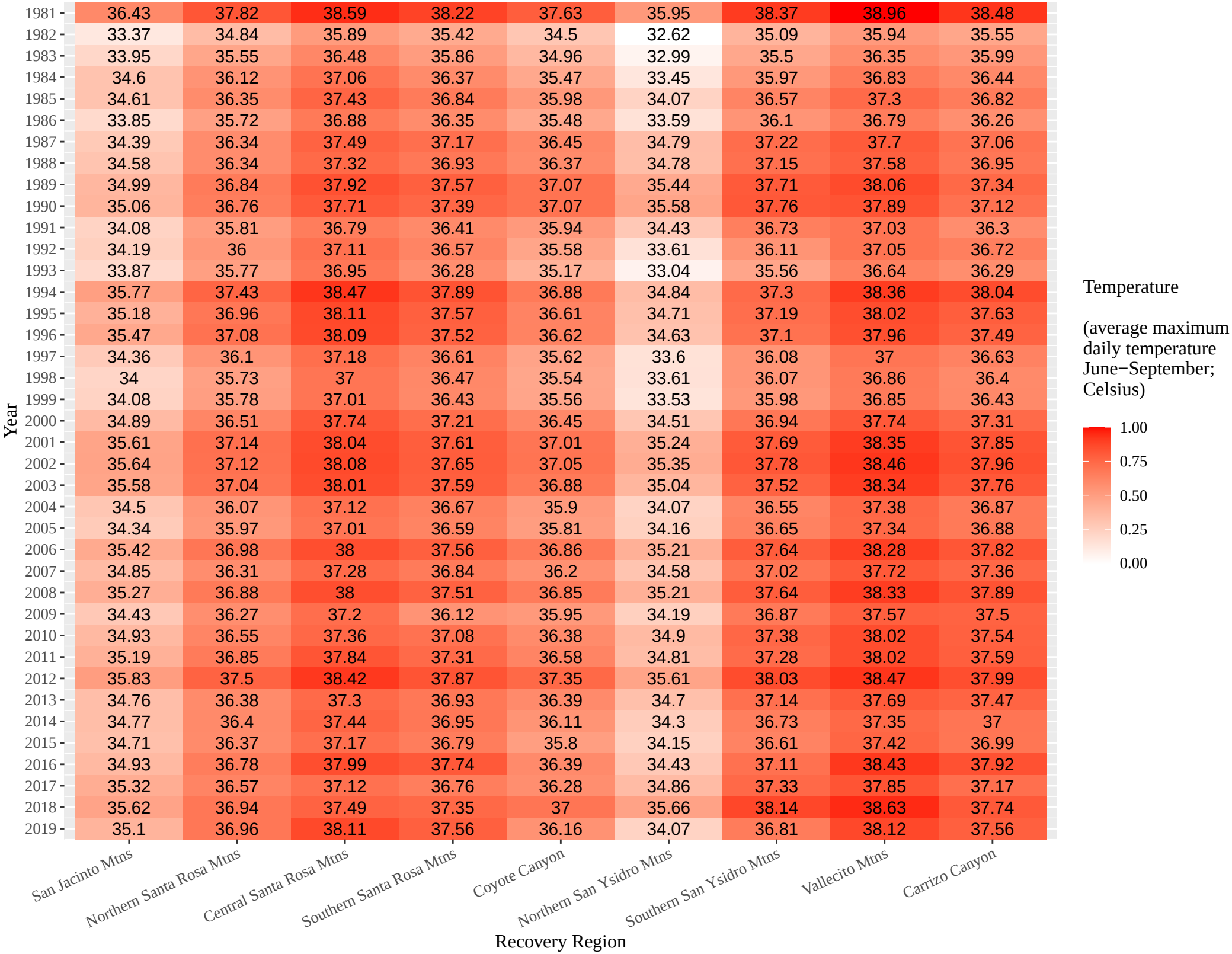
Appendix S1: Heatmaps of adult survival rates, lamb:ewe ratios, population size, temperature, precipitation, and pathogen prevalence (infection or exposure), by recovery region and year of sampling. The prevalence of each pathogen was calculated for each year-recovery region unit (i.e., "2010 – San Jacinto Mtns") for which ≥5 samples were tested (all capture events included). Adult survival and pathogen prevalence are reported as proportions. Lamb:ewe ratios are reported as the number of lambs per adult female. Temperature was calculated as the average of daily maximum temperatures (Celsius) from June – September for year$_t$. Annual precipitation (centimeters) for year$_t$ was measured as the sum of daily precipitation from November$_{t-1}$ through October$_t$. Precipitation was also aggregated annually for winter (November$_{t-1}$ – April$_t$) and summer (May$_t$ – October$_t$) seasons. Numbers in each cell are the raw data values, while the color describes the relative value of each datapoint on a scale of 0-1. Gray cells indicate that samples were not tested, or population estimates were not calculated for that year and recovery region combination.


Year
1981
1982
1983
1984
1985 0.7
1986 0.87
1987 0.9
1988 0.9
1989 0.72
1990 0.77
1991 0.75
1992 0.89
1993 0.64 0.92 1 0.89
1994 0.64 0.63 0.77 0.75 0.63 0.82
1995 0.82 0.6 1 0.67 0.75 0.71
1996 0.75 0.67 0.8 1 0.1 0.6
1997 0.78 1 1 1 0.33 1
1998 0.89 0.9 0.88 0.6 0.88 1
1999 0.83 0.79 0.75 0.86 0.5 0.8 1
2000 0.96 0.89 0.71 1 0.91 1
2001 0.96 0.78 0.88 0.6 1 0.92 1
2002 0.8 0.78 0.75 0.83 0.91 0.91
2003 0.96 0.95 1 1 1 1 0.7
2004 0.84 1 0.9 0.75 0.92 0.86 1
2005 0.85 0.81 1 1 0.82 0.9 0.75
2006 0.56 0.9 0.82 0.92 1
2007 0.92 0.98 0.8 0.89 0.67 1 1
2008 0.93 0.95 0.9 0.91 0.75 0.92 0.92
2009 0.89 0.98 0.89 0.8 0.67 1 0.91
2010 0.92 0.97 0.93 1 0.75 1 0.92
2011 1 0.98 0.9 1 0.85 0.83 1 1
2012 1 0.97 0.89 0.86 0.73 0.9 1 1
2013 0.98 0.88 0.88 0.75 1 0.67 1 0.67
2014 1 0.97 0.83 1 1 1 0.94
2015 1 0.97 0.92 0.67 1 0.9 0.89
2016 1 0.95 0.95 0.78 0.92 0.85 0.79 0.94 0.8
2017 0.97 0.99 0.94 0.86 0.82 1 1 0.94 0.6
2018 0.99 0.94
2019
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Adult annual survival
1.00
0.75
0.50
0.25
0.00


Year
1981
1982
1983 0
1984 0.12 0.29
1985 0.12
1986
1987 2 0
1988 1 0.05
1989 0.06
1990
1991 0 0
1992
1993 0.29 0.08
1994 0.8 0.27 0.35 0.29 0.82 0.17 0.36
1995 0.83 0
1996 1 0.2 0.73 0.13 0.25 0.22 0.2
1997 0.67 0.11
1998 0.12 0.58 0.62 0.5 0.57 0.36 0.56
1999 0.67 0.09
2000 0.83 0.86 0.5 0.14 0.55 0.58 0.17
2001 0.71 0.13
2002 0.5 0.5 0.25 0.53 0.36 0.33 0.48
2003 1 0.6
2004 0 0.83 0.55 0.5 0.5 0.51 0.28
2005 0 0.17
2006 0.62 0.04 0.4 0.36 0.48 0.2 0.37
2007 0.25 0.2 0.79
2008 0.18 0.18 0.62 0.2 0.66 0.43 0.64 0.24 0.3
2009 0.33 0.03 0.52 0.51 0.3 0.41
2010 0.42 0.19 0.52 0.3 0.37 0.14 0.61 0.36 0.79
2011 0.57 0.09 0.69 0.56 0.21 0.58 0.63
2012 0.29 0.32 0.46 0.36 0.13 0.63 0.7
2013 0.41 0.4 0.57 0.26 0.07 0.93 0.51
2014 0.42 0.29 0.56 0.25 0.38 0.1
2015 0.36 0.11 0.6 0.7 0.35 0.19 0.47 0.86
2016 0.62 0.3 0.76 0.25 0.73 0.66 0.94 0.28 0.75
2017 0.25 0.07 0.69 0.41 0.77 0.83
2018 0.16 0.56 0.6 0.62 0.31 0.33 0.22 0.41
2019 0.84 0.43 0.22 0.29
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Lamb:ewe ratio
1.00
0.75
0.50
0.25
0.00


Year
1981
1982
1983 15
1984 14 20
1985 20
1986
1987 4 20
1988 5 32
1989 0 23
1990 5
1991 4 16
1992 1
1993 17 18
1994 17 23 29 68 19 29 58
1995 19 24
1996 19 21 37 39 26 28 34
1997 22 22
1998 24 25 72 35 35 34 41 45 28
1999 21 25
2000 26 27 53 51 35 33 39 64 82
2001 30 45
2002 24 38 115 84 35 47 41 155 127
2003 25 47
2004 32 57 47 50 47 150 101
2005 24 56
2006 21 58 163 179 42 79 38 77 145
2007 26 59
2008 26 62 122 155 52 82 53 123 186
2009 24 62
2010 22 60 133 149 66 72 55 142 232
2011 27 59
2012 35 60
2013 32 62
2014 40 72
2015 47 76
2016 55 83 119 83 69 59 42 163 256
2017 69 74
2018 75 62
2019
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Population size
(interpolated)
1.00
0.75
0.50
0.25
0.00


Year
Recovery Region
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
1981 36.43 37.82 38.59 38.22 37.63 35.95 38.37 38.96 38.48
1982 33.37 34.84 35.89 35.42 34.5 32.62 35.09 35.94 35.55
1983 33.95 35.55 36.48 35.86 34.96 32.99 35.5 36.35 35.99
1984 34.6 36.12 37.06 36.37 35.47 33.45 35.97 36.83 36.44
1985 34.61 36.35 37.43 36.84 35.98 34.07 36.57 37.3 36.82
1986 33.85 35.72 36.88 36.35 35.48 33.59 36.1 36.79 36.26
1987 34.39 36.34 37.49 37.17 36.45 34.79 37.22 37.7 37.06
1988 34.58 36.34 37.32 36.93 36.37 34.78 37.15 37.58 36.95
1989 34.99 36.84 37.92 37.57 37.07 35.44 37.71 38.06 37.34
1990 35.06 36.76 37.71 37.39 37.07 35.58 37.76 37.89 37.12
1991 34.08 35.81 36.79 36.41 35.94 34.43 36.73 37.03 36.3
1992 34.19 36 37.11 36.57 35.58 33.61 36.11 37.05 36.72
1993 33.87 35.77 36.95 36.28 35.17 33.04 35.56 36.64 36.29
1994 35.77 37.43 38.47 37.89 36.88 34.84 37.3 38.36 38.04
1995 35.18 36.96 38.11 37.57 36.61 34.71 37.19 38.02 37.63
1996 35.47 37.08 38.09 37.52 36.62 34.63 37.1 37.96 37.49
1997 34.36 36.1 37.18 36.61 35.62 33.6 36.08 37 36.63
1998 34 35.73 37 36.47 35.54 33.61 36.07 36.86 36.4
1999 34.08 35.78 37.01 36.43 35.56 33.53 35.98 36.85 36.43
2000 34.89 36.51 37.74 37.21 36.45 34.51 36.94 37.74 37.31
2001 35.61 37.14 38.04 37.61 37.01 35.24 37.69 38.35 37.85
2002 35.64 37.12 38.08 37.65 37.05 35.35 37.78 38.46 37.96
2003 35.58 37.04 38.01 37.59 36.88 35.04 37.52 38.34 37.76
2004 34.5 36.07 37.12 36.67 35.9 34.07 36.55 37.38 36.87
2005 34.34 35.97 37.01 36.59 35.81 34.16 36.65 37.34 36.88
2006 35.42 36.98 38 37.56 36.86 35.21 37.64 38.28 37.82
2007 34.85 36.31 37.28 36.84 36.2 34.58 37.02 37.72 37.36
2008 35.27 36.88 38 37.51 36.85 35.21 37.64 38.33 37.89
2009 34.43 36.27 37.2 36.12 35.95 34.19 36.87 37.57 37.5
2010 34.93 36.55 37.36 37.08 36.38 34.9 37.38 38.02 37.54
2011 35.19 36.85 37.84 37.31 36.58 34.81 37.28 38.02 37.59
2012 35.83 37.5 38.42 37.87 37.35 35.61 38.03 38.47 37.99
2013 34.76 36.38 37.3 36.93 36.39 34.7 37.14 37.69 37.47
2014 34.77 36.4 37.44 36.95 36.11 34.3 36.73 37.35 37
2015 34.71 36.37 37.17 36.79 35.8 34.15 36.61 37.42 36.99
2016 34.93 36.78 37.99 37.74 36.39 34.43 37.11 38.43 37.92
2017 35.32 36.57 37.12 36.76 36.28 34.86 37.33 37.85 37.17
2018 35.62 36.94 37.49 37.35 37 35.66 38.14 38.63 37.74
2019 35.1 36.96 38.11 37.56 36.16 34.07 36.81 38.12 37.56
Temperature
(average maximum daily temperature June−September; Celsius)
1.00
0.75
0.50
0.25
0.00

Year	San Jacinto Mtns	Northern Santa Rosa Mtns	Central Santa Rosa Mtns	Southern Santa Rosa Mtns	Coyote Canyon	Northern San Ysidro Mtns	Southern San Ysidro Mtns	Vallecito Mtns	Carrizo Canyon
1981	210.09	179.5	178.23	416.85	316.64	62.72	161.88	551.09	701.14
1982	399.94	323.04	294.71	693.33	519.23	101.17	251.68	854.9	1060.54
1983	698.78	602.26	627.25	1439.41	1130.03	211.9	549.54	1860.3	2243.21
1984	221.03	221.3	242.19	543.19	409.43	83.02	199.47	657.79	820.34
1985	281.97	222.05	218.3	552.91	417.27	84.18	204.99	713.38	917.81
1986	391.4	326.59	339.04	777.47	604.32	119.55	308.81	1037.61	1303.4
1987	241.73	194.43	184.44	425.31	331.54	70.37	176.87	586.91	781.45
1988	249.41	235.99	253.25	524.25	392.06	73.97	193.19	646.86	818.19
1989	205.08	146.38	127.81	312.29	225.75	44.91	99.89	360.8	433.75
1990	190.6	149.59	123.3	330.78	250.7	50.79	125.12	430.05	570.18
1991	402.85	309.23	301	726.33	554.26	110.64	277.13	878.87	994.71
1992	343.31	336.45	355.74	780.35	609.04	117.9	299.4	1035.35	1318.28
1993	682.03	575.41	528.31	1266.13	881.02	160.37	411.8	1488.8	1792.21
1994	261.78	197.73	182.45	455.9	342.87	73.58	180.38	605.84	767.45
1995	496.71	388.28	354.7	850.63	564	116.72	286.45	989.69	1246.78
1996	215.6	139.33	107.14	301.15	212.74	47.76	113.08	359.17	412.09
1997	320.17	272.07	276.25	575.38	403.66	75.34	188.75	670.7	850.13
1998	463.5	352.72	309.49	775.31	610.9	130.51	322.89	1030.11	1295.09
1999	127.85	115.29	118.87	287.88	242.85	51.83	129.88	391.95	484.42
2000	182.64	130.83	109.4	293.94	233.42	49.9	118.14	377.52	450.55
2001	212.35	173.64	167.52	415.48	304.01	58.39	152.94	511.36	586.68
2002	78.67	50.92	42.78	119	96.26	21.22	51.21	155.89	200.86
2003	281.71	232.32	223.18	530.36	415.34	86.44	208.32	675.36	852.25
2004	316.51	242.09	216.31	514.42	402.21	85.07	214.18	727.76	972.31
2005	555.46	495.62	500.71	1113.33	813.94	142.69	380.51	1324.6	1602.97
2006	199.59	129.54	94.31	246.28	189.5	41.38	95.87	285.61	377.31
2007	82.73	60.96	56.65	151.76	119.85	27.02	62.74	202.82	264.63
2008	241.48	238.9	242.08	638.64	421.93	78.84	184.25	585.15	721.51
2009	202.07	163.84	157.52	394.43	303.29	58.83	147.94	477.96	665.98
2010	454.37	375.83	372.02	848.04	590.71	122.35	331.1	1277.67	1657.51
2011	500.82	325.26	282.5	600.1	469.69	83.69	218.57	701.63	946.7
2012	183.66	160.37	194.57	376.99	294.87	61.26	165.91	563.8	765.92
2013	128.7	128.36	148.9	351.68	297.75	68.46	166.99	509.68	781.25
2014	151.5	112.68	104.05	219.24	166.68	26.65	66.48	241.34	313.54
2015	281.29	227.06	189.12	451.95	411.08	85	232.38	761.38	1134.88
2016	220.88	187.88	167.8	440.49	332.4	62.77	158.53	614	743.61
2017	419.38	362.48	282.97	657.99	539.33	100.57	220.87	837.89	1013.63
2018	167.12	142.1	120.97	194.26	138.39	24.86	57.07	205.35	281.14
2019	484.74	392.03	344.73	783.85	657.86	113.77	266.69	948.29	1314.66

Recovery Region

Total annual precipitation (centimeters)

1.00
0.75
0.50
0.25
0.00

Year	San Jacinto Mtns	Northern Santa Rosa Mtns	Central Santa Rosa Mtns	Southern Santa Rosa Mtns	Coyote Canyon	Northern San Ysidro Mtns	Southern San Ysidro Mtns	Vallecito Mtns	Carrizo Canyon
1981	25.73	31.94	42.21	78.52	49.6	10.79	24.2	96.05	119.26
1982	84.13	73.42	75.69	163.42	127.5	22.91	56.89	200.46	253.87
1983	175.91	211.87	260.94	497.03	356.11	63.4	159.26	544.31	566.31
1984	92.22	120.89	148.69	316.88	237.49	48.51	116.58	396.68	509.41
1985	41.18	43.41	53.28	133.68	90.74	21.71	48.02	186.57	259.93
1986	71.87	71.42	87.28	197.79	145.65	29.41	73.64	281.29	385.92
1987	82.4	62.29	65.99	144.3	111.95	25.69	63.2	228.2	338.68
1988	19.93	30.42	34.11	64.19	59.47	12	28.8	102.5	149.13
1989	36.14	33.9	37.38	75.14	50.71	10.05	21.95	93.74	117.55
1990	45.64	44.16	47.54	121.49	103.65	19.38	50.34	190.69	279.17
1991	61.28	58.47	71.94	172.09	114.4	22.46	51.77	182.21	176.53
1992	45.98	44.63	48.88	130.52	137.77	31.22	68.99	213.88	290.38
1993	12.38	11.18	14.94	35.56	18.51	4.64	12.44	49.28	81.37
1994	32.38	29.15	29.62	62.55	46.91	11.85	27.18	88.66	123.74
1995	14.79	20.09	28.45	53.82	33.67	9.54	21.55	71.5	135.1
1996	24.71	13.76	17.16	44.04	21.99	6.74	14.76	55.17	68.83
1997	81.97	95.48	138.05	246.36	157.87	26.96	70.1	289.45	400.71
1998	41.74	39.37	41.28	79.59	59.19	16.67	35.36	95.33	152.17
1999	34.56	46.42	56.12	120.43	93.08	17.65	42.1	132.39	147.6
2000	37.11	38.75	39.46	94.59	76.64	15.16	36.33	116.02	135.53
2001	15.36	10.04	13.02	37.2	30.51	5.82	14.8	44.21	31.75
2002	3.43	4.6	6.31	16.3	12.91	2.92	7.62	28.9	45.89
2003	24.44	41.54	55.52	126.93	87.43	21.05	47.27	166.51	234.73
2004	133.38	102.28	85.12	201.06	172.51	42.03	104.12	330.29	476.6
2005	88.82	95.86	120.91	241.06	166.59	25.69	70.81	271.08	341.82
2006	21.98	23.19	24.35	43.96	25.72	6.41	14.46	35.24	53.7
2007	17.8	14.61	17.59	33.67	24.67	4.55	10.22	39.71	56.24
2008	30.61	43.1	62.51	134.85	83.07	13.42	24.9	90.57	121.45
2009	4.89	5.17	6.09	13.87	11.14	1.03	2.76	8.8	18.38
2010	35.12	35.41	52.69	125.46	97.05	25.53	70.69	251.27	324.87
2011	44.5	51.08	60.85	102.75	62.15	13.98	31.22	85.8	119.95
2012	43.08	69.04	111.42	183.86	103.46	17.81	46.51	233.8	259.24
2013	44.89	56.7	86.63	192.01	166.93	42.68	97.75	272.68	377.94
2014	58.91	52.48	57.44	89.61	65.13	8.71	21.85	90.58	111.21
2015	111.55	96.22	80.01	182.12	157.88	37.95	107.9	348.49	520.89
2016	48.73	41.79	35.94	84.47	74.63	11.78	25.12	99.04	174.29
2017	14.43	14.54	7.82	25.49	21.13	4.83	9.74	36.34	41.5
2018	82.96	72.41	68.48	85.81	56.35	8.06	17.55	53.25	84.99
2019	48.77	35.57	37.16	66.78	48.69	12.4	30.86	127.79	288.91

Recovery Region

Total summer precipitation

(centimeters)

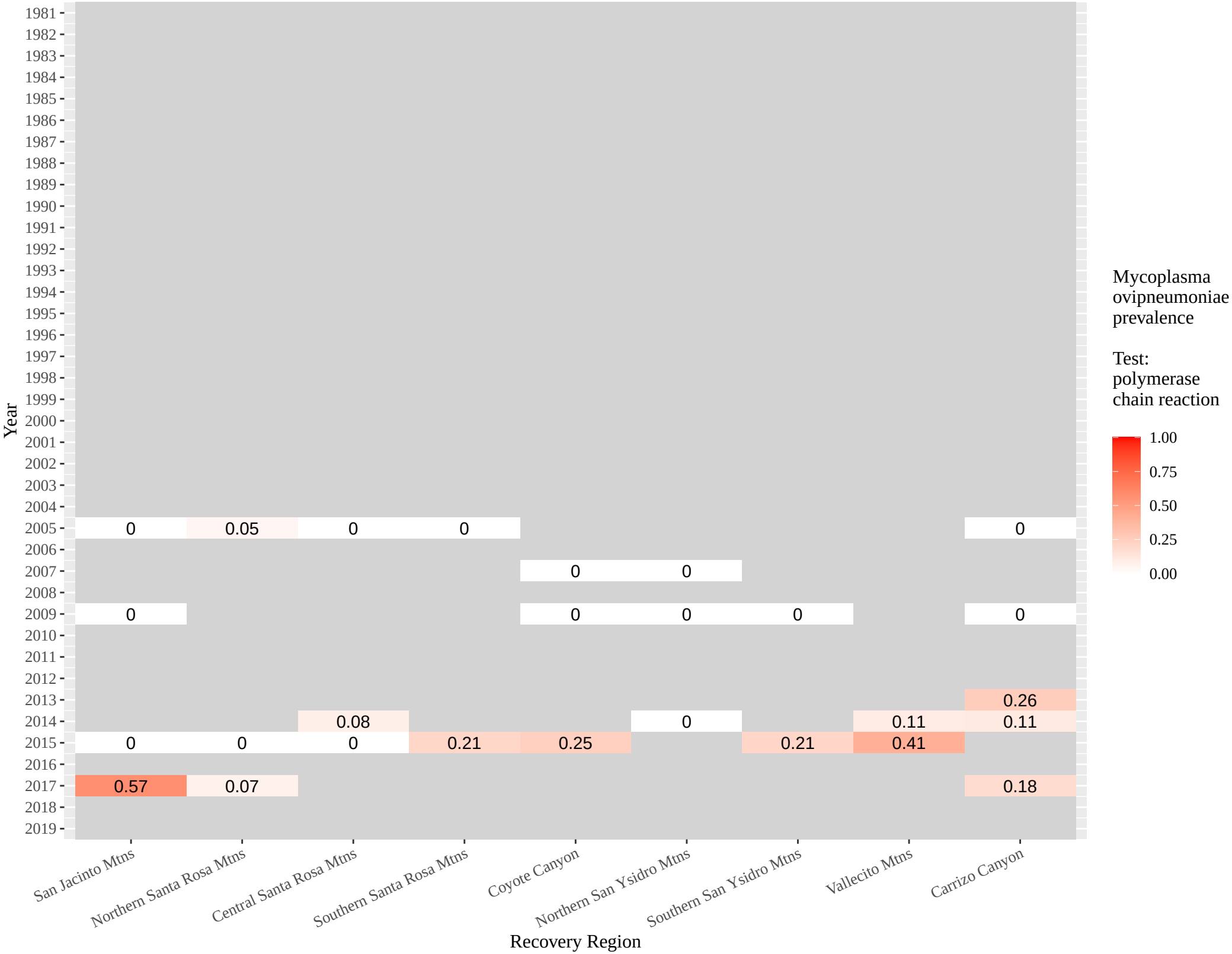
1.00
0.75
0.50
0.25
0.00

Year	San Jacinto Mtns	Northern Santa Rosa Mtns	Central Santa Rosa Mtns	Southern Santa Rosa Mtns	Coyote Canyon	Northern San Ysidro Mtns	Southern San Ysidro Mtns	Vallecito Mtns	Carrizo Canyon
1981	184.36	147.56	136.02	338.33	267.04	51.93	137.68	455.04	581.88
1982	315.82	249.62	219.01	529.91	391.73	78.26	194.79	654.43	806.67
1983	522.87	390.39	366.31	942.38	773.92	148.5	390.28	1315.99	1676.91
1984	128.82	100.42	93.5	226.31	171.94	34.51	82.89	261.11	310.92
1985	240.78	178.65	165.02	419.23	326.53	62.48	156.97	526.81	657.88
1986	319.53	255.17	251.76	579.69	458.67	90.14	235.16	756.33	917.48
1987	159.34	132.14	118.46	281	219.59	44.68	113.67	358.71	442.78
1988	229.48	205.57	219.14	460.07	332.59	61.97	164.39	544.36	669.06
1989	168.95	112.48	90.44	237.14	175.05	34.85	77.94	267.06	316.2
1990	144.96	105.43	75.76	209.29	147.05	31.41	74.78	239.37	291.01
1991	341.57	250.76	229.06	554.23	439.87	88.18	225.36	696.66	818.19
1992	297.33	291.82	306.86	649.83	471.26	86.67	230.4	821.47	1027.9
1993	669.65	564.22	513.36	1230.57	862.51	155.73	399.36	1439.52	1710.83
1994	229.4	168.57	152.82	393.35	295.96	61.73	153.2	517.19	643.71
1995	481.92	368.18	326.24	796.81	530.33	107.18	264.9	918.19	1111.68
1996	190.89	125.57	89.98	257.11	190.74	41.02	98.32	304	343.26
1997	238.2	176.59	138.2	329.03	245.78	48.38	118.65	381.26	449.42
1998	421.77	313.35	268.2	695.72	551.71	113.84	287.54	934.78	1142.92
1999	93.29	68.87	62.74	167.46	149.77	34.19	87.79	259.56	336.81
2000	145.53	92.08	69.94	199.36	156.77	34.73	81.81	261.5	315.02
2001	197	163.6	154.5	378.28	273.51	52.56	138.14	467.15	554.93
2002	75.23	46.32	36.46	102.7	83.35	18.3	43.6	126.99	154.97
2003	257.27	190.78	167.66	403.43	327.91	65.39	161.06	508.85	617.52
2004	183.13	139.81	131.19	313.36	229.7	43.04	110.07	397.47	495.71
2005	466.64	399.77	379.8	872.27	647.34	117	309.7	1053.52	1261.15
2006	177.61	106.35	69.96	202.33	163.78	34.96	81.41	250.37	323.6
2007	64.93	46.34	39.05	118.09	95.18	22.48	52.52	163.11	208.39
2008	210.87	195.8	179.57	503.79	338.86	65.42	159.36	494.58	600.06
2009	197.18	158.68	151.43	380.57	292.15	57.8	145.18	469.15	647.6
2010	419.25	340.42	319.33	722.59	493.66	96.82	260.41	1026.41	1332.64
2011	456.32	274.17	221.65	497.35	407.54	69.7	187.35	615.83	826.75
2012	140.58	91.33	83.15	193.13	191.41	43.45	119.4	330	506.68
2013	83.8	71.65	62.28	159.67	130.83	25.78	69.24	237	403.32
2014	92.59	60.2	46.61	129.63	101.54	17.94	44.63	150.75	202.33
2015	169.74	130.84	109.11	269.83	253.2	47.05	124.47	412.89	613.99
2016	172.16	146.09	131.86	356.01	257.77	50.99	133.41	514.96	569.33
2017	404.95	347.94	275.15	632.51	518.2	95.73	211.13	801.54	972.12
2018	84.17	69.69	52.49	108.45	82.04	16.8	39.51	152.1	196.15
2019	435.98	356.46	307.57	717.07	609.18	101.37	235.82	820.5	1025.74

Recovery Region

Total winter precipitation (centimeters)

1.00
0.75
0.50
0.25
0.00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0.57
0.07
0.18
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Mycoplasma ovipneumoniae prevalence
Test: polymerase chain reaction
1.00
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0.50
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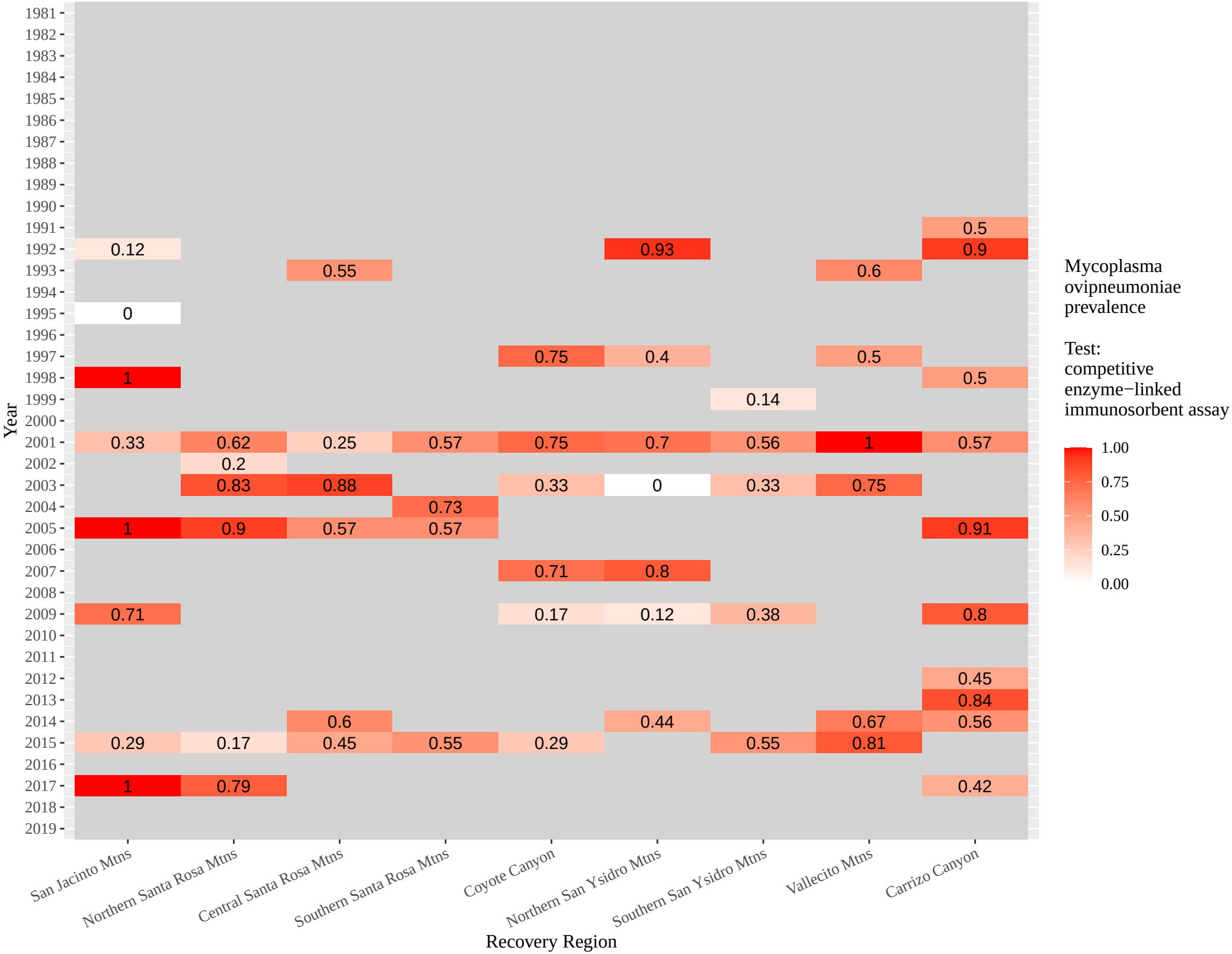
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Mycoplasma ovipneumoniae prevalence
Test: competitive enzyme−linked immunosorbent assay
1.00
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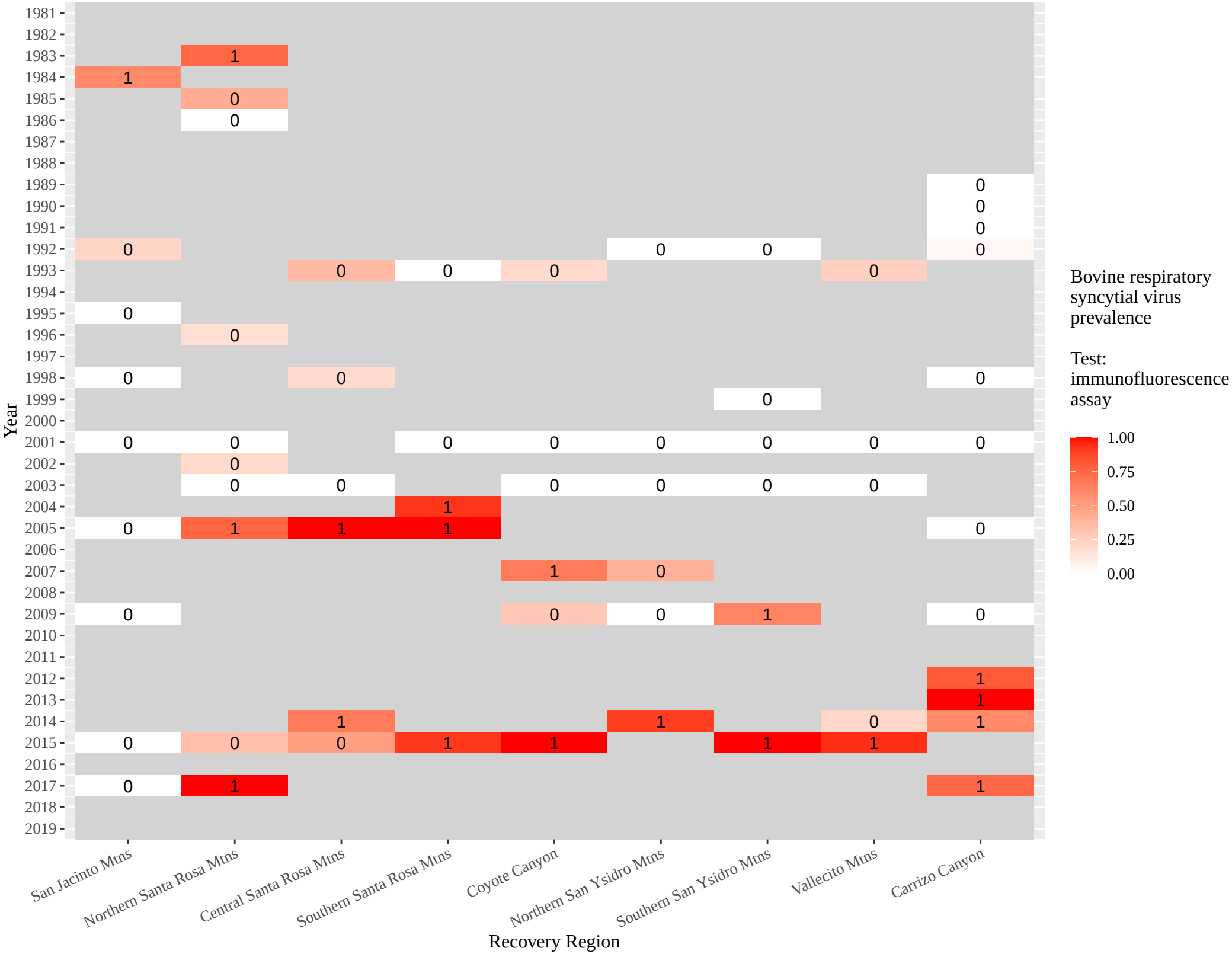
0.25
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bovine respiratory syncytial virus prevalence
Test: immunofluorescence assay
1.00
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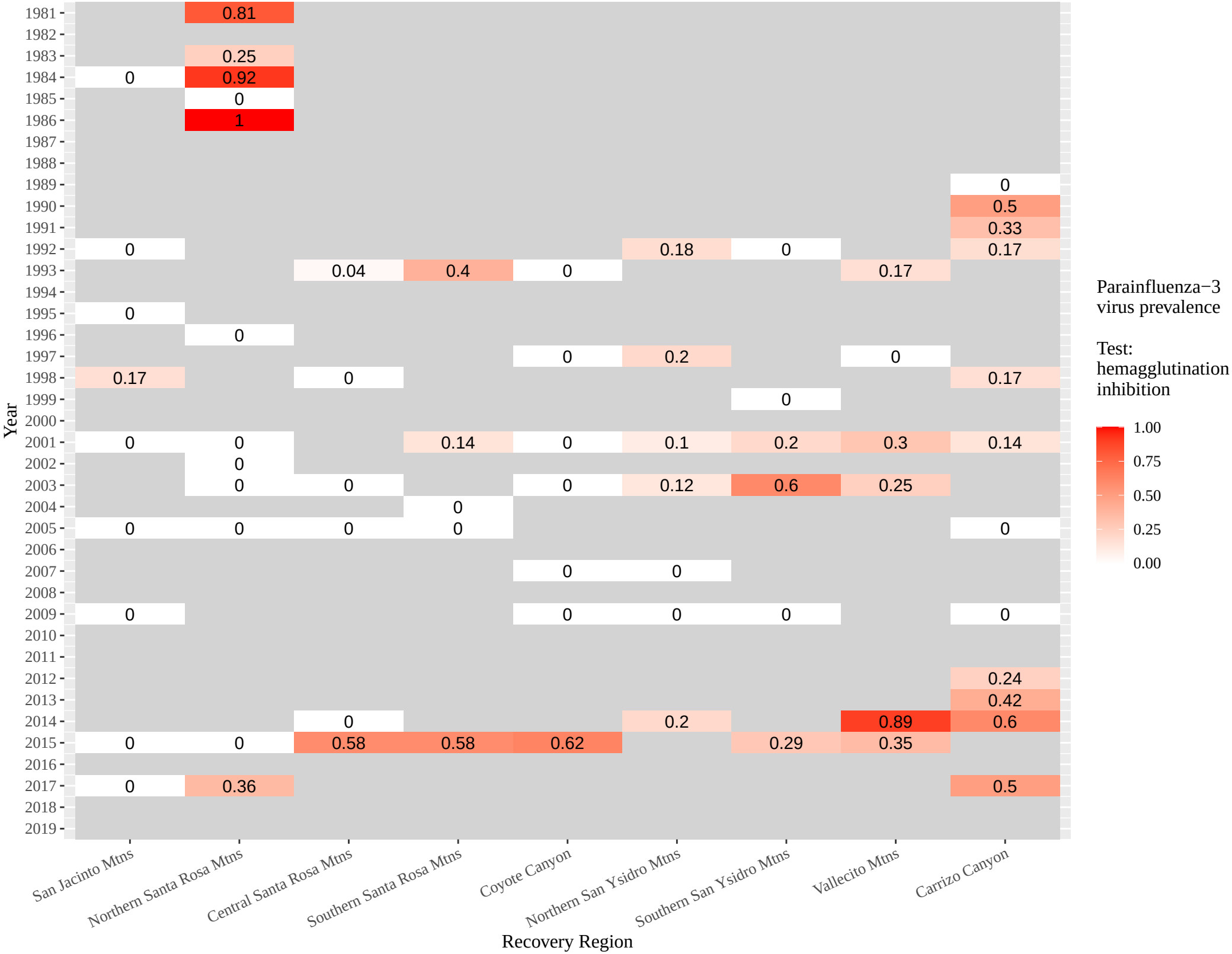
0.50
0.25
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Parainfluenza−3 virus prevalence
Test: hemagglutination inhibition
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0.50
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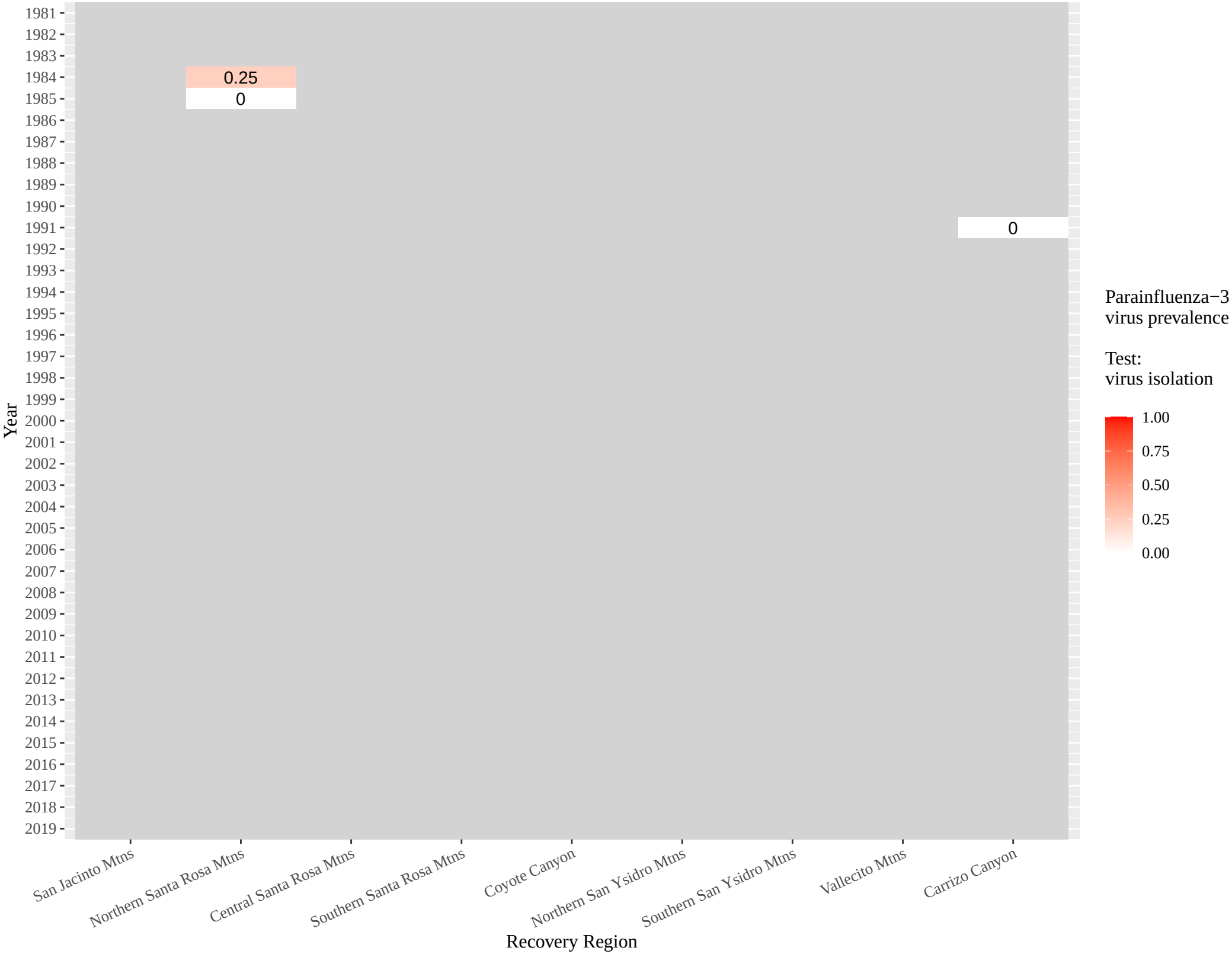
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Parainfluenza−3
virus prevalence
Test:
virus isolation
1.00
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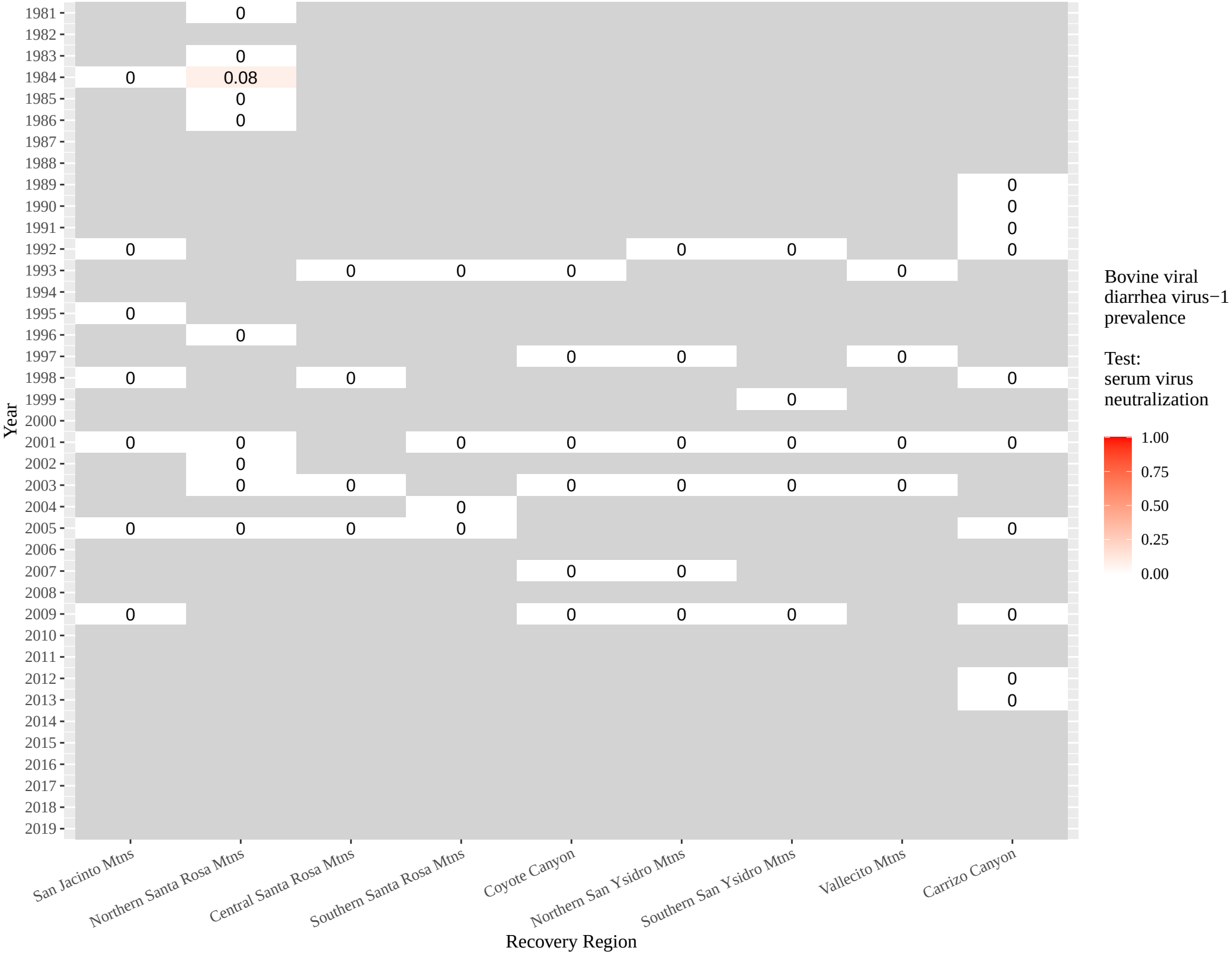
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bovine viral diarrhea virus−1 prevalence
Test: serum virus neutralization
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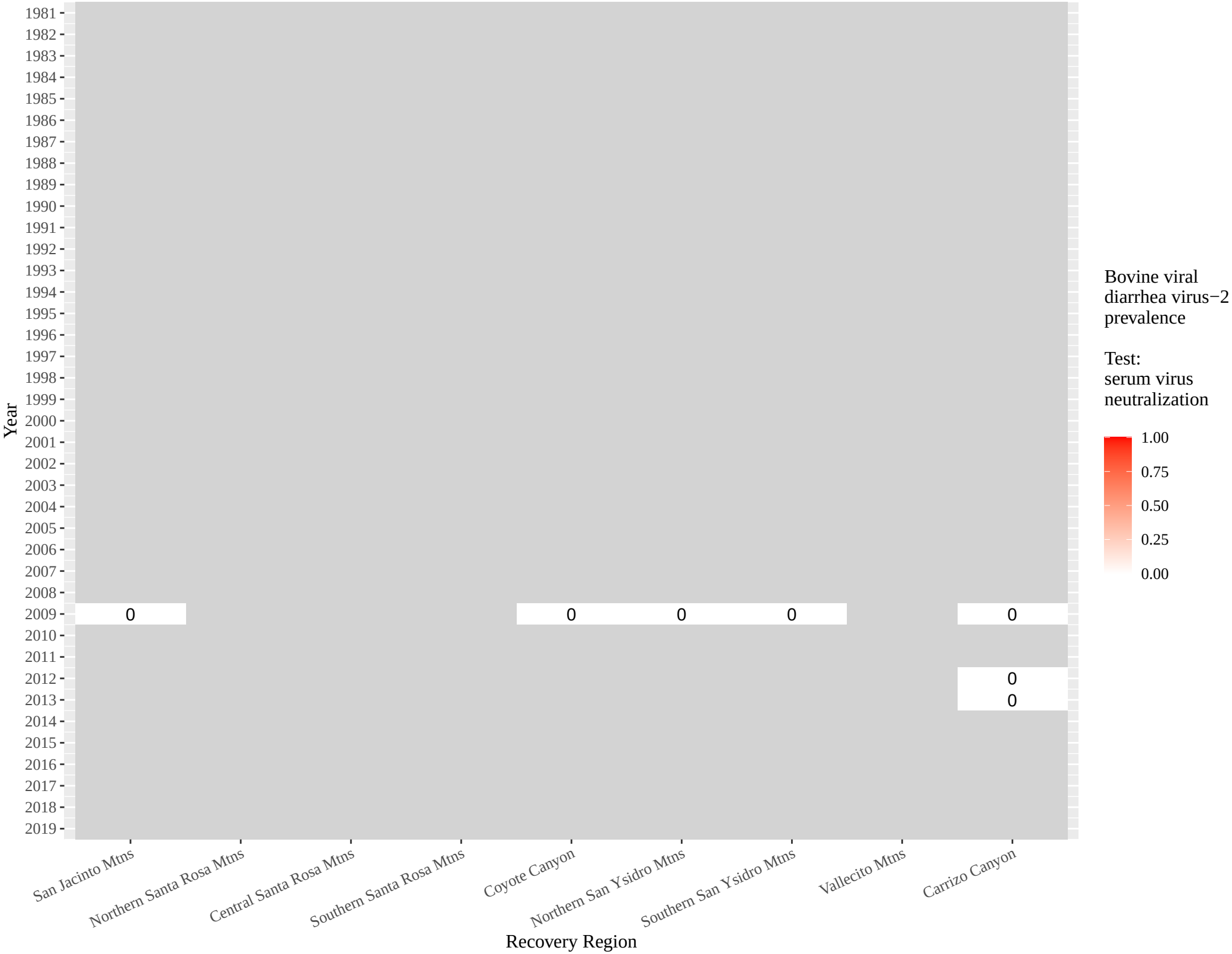
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bovine viral diarrhea virus−2 prevalence
Test: serum virus neutralization
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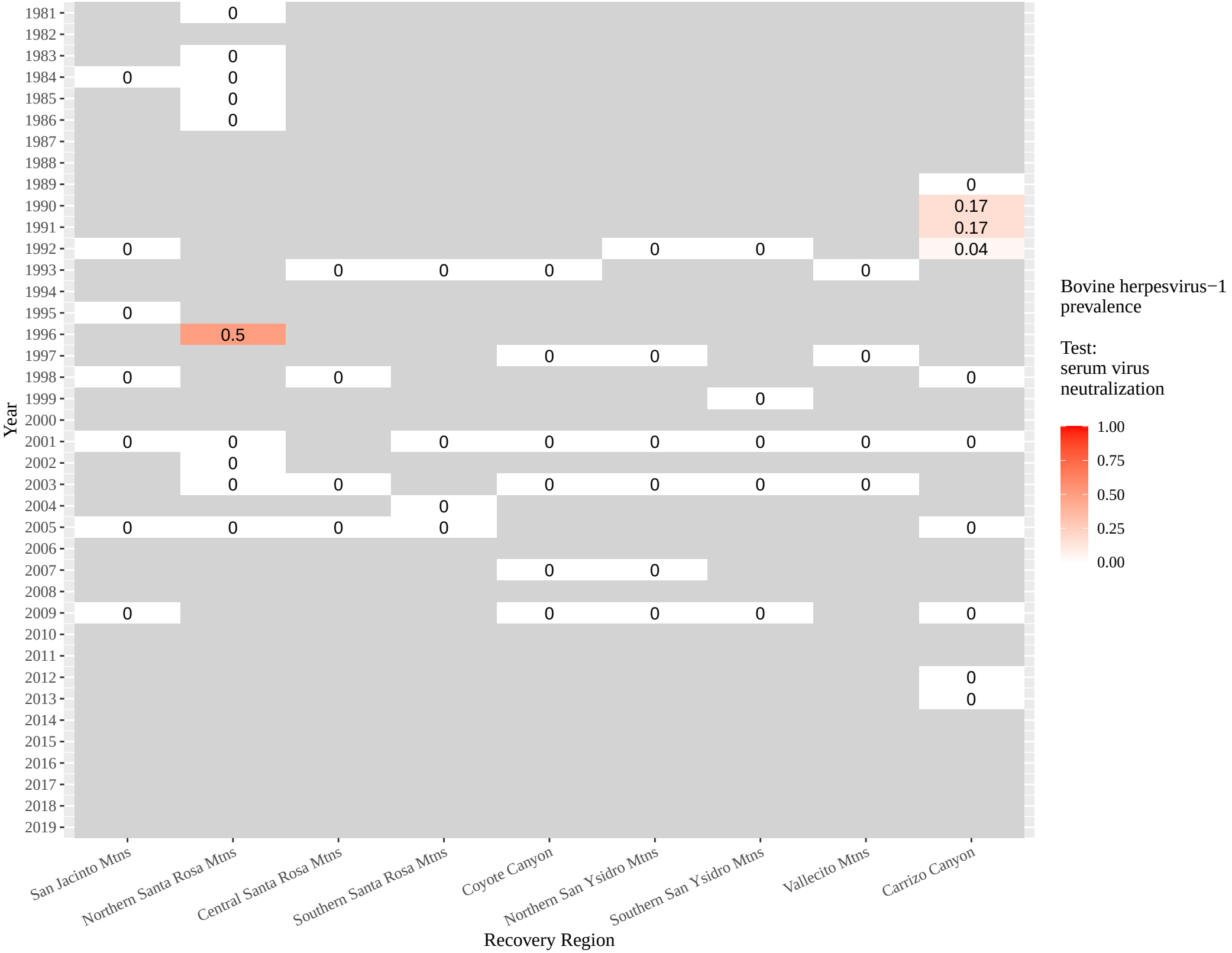
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bovine herpesvirus−1 prevalence
Test: serum virus neutralization
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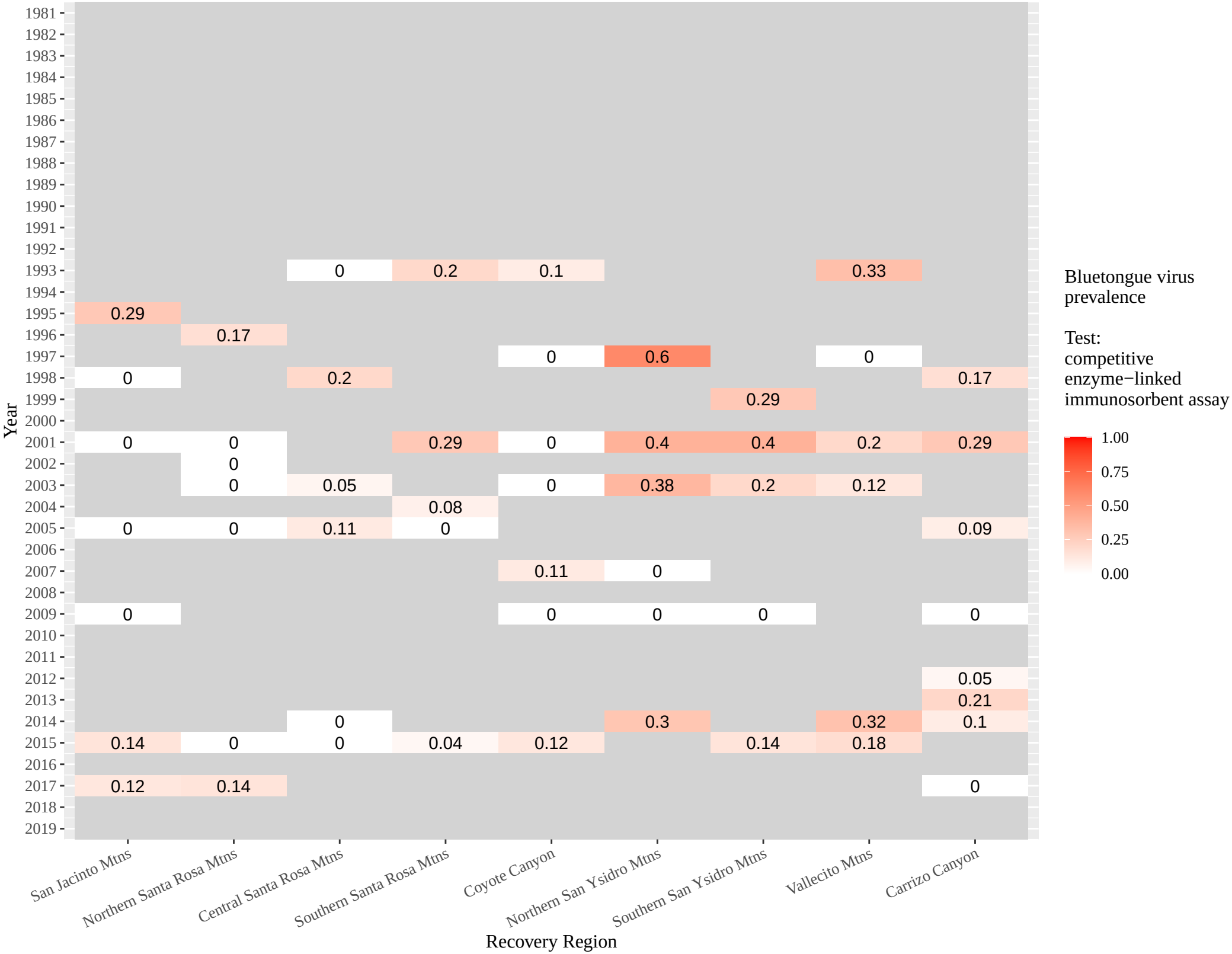
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bluetongue virus prevalence
Test: competitive enzyme−linked immunosorbent assay
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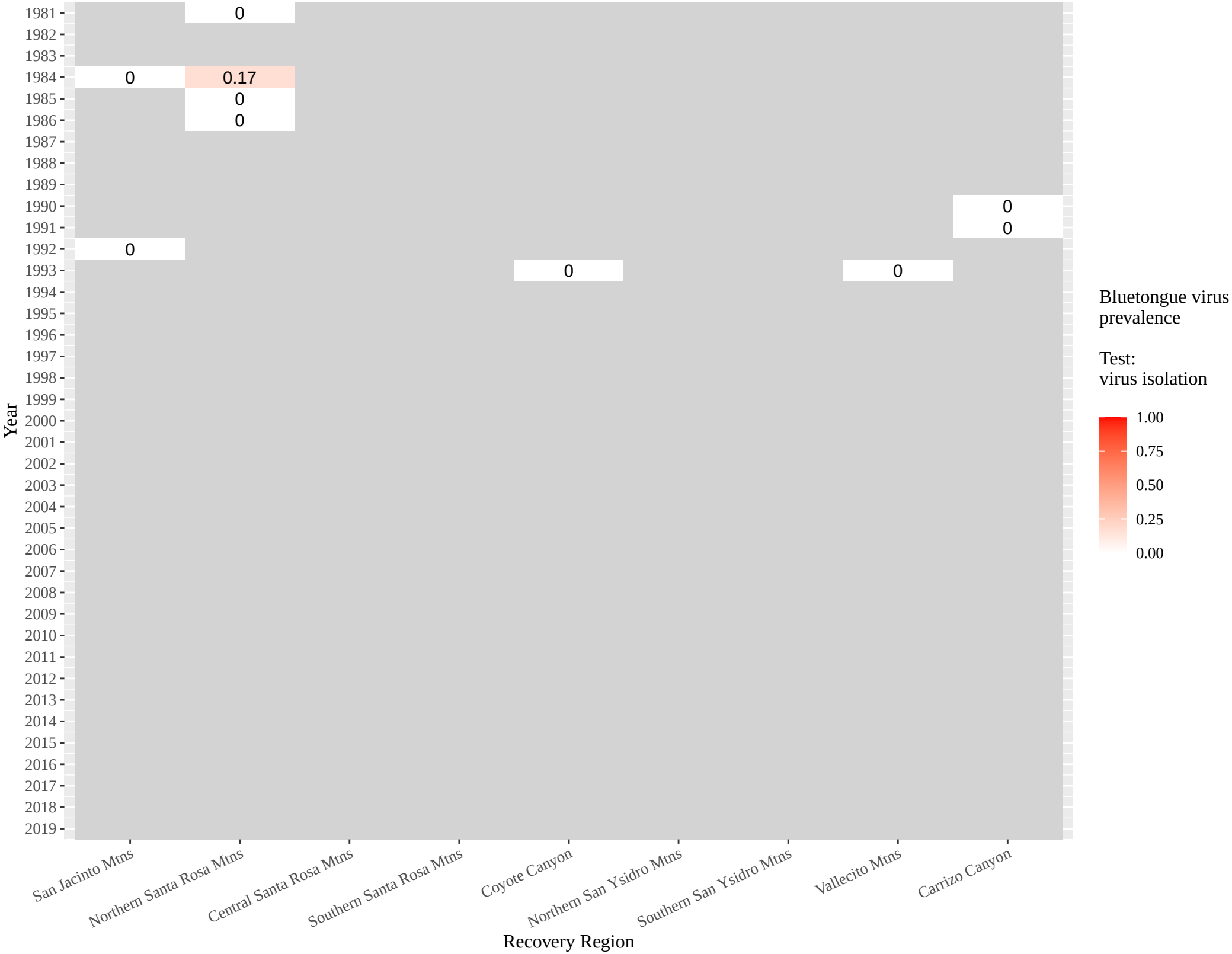
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San Jacinto Mtns
Northern Santa Rosa Mtns
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Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bluetongue virus prevalence
Test:
virus isolation
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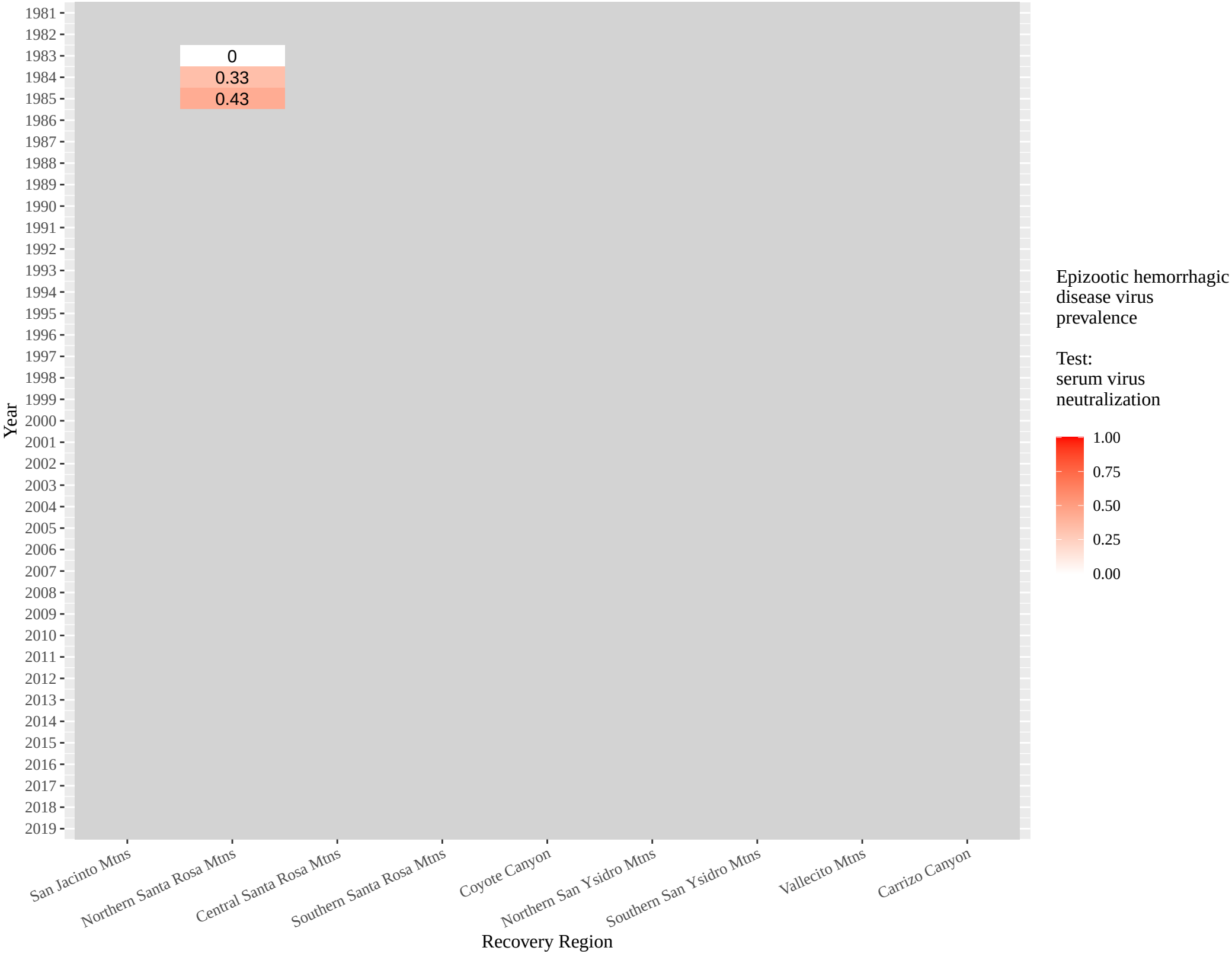
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Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Epizootic hemorrhagic disease virus prevalence
Test:
serum virus neutralization
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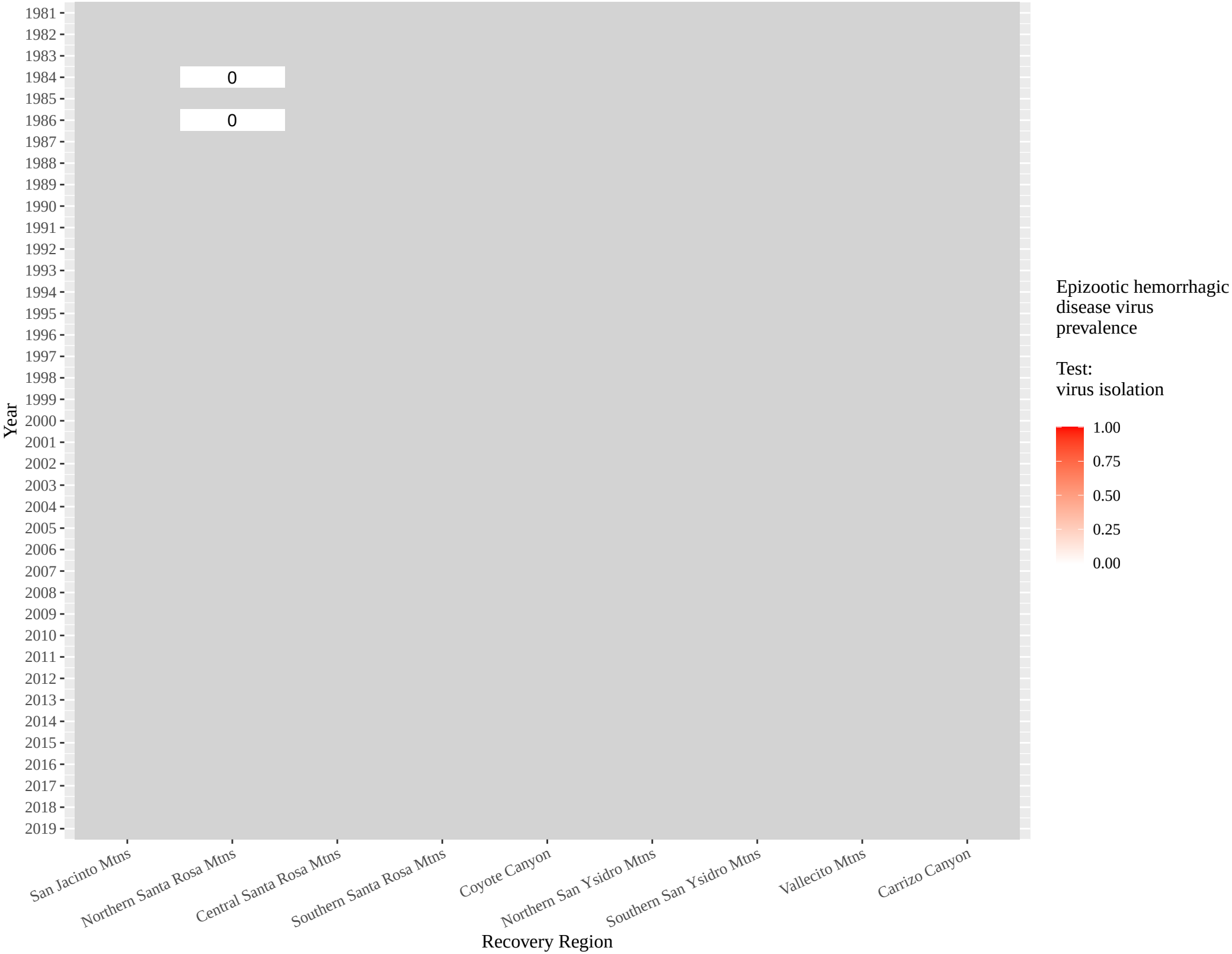
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Epizootic hemorrhagic disease virus prevalence
Test:
virus isolation
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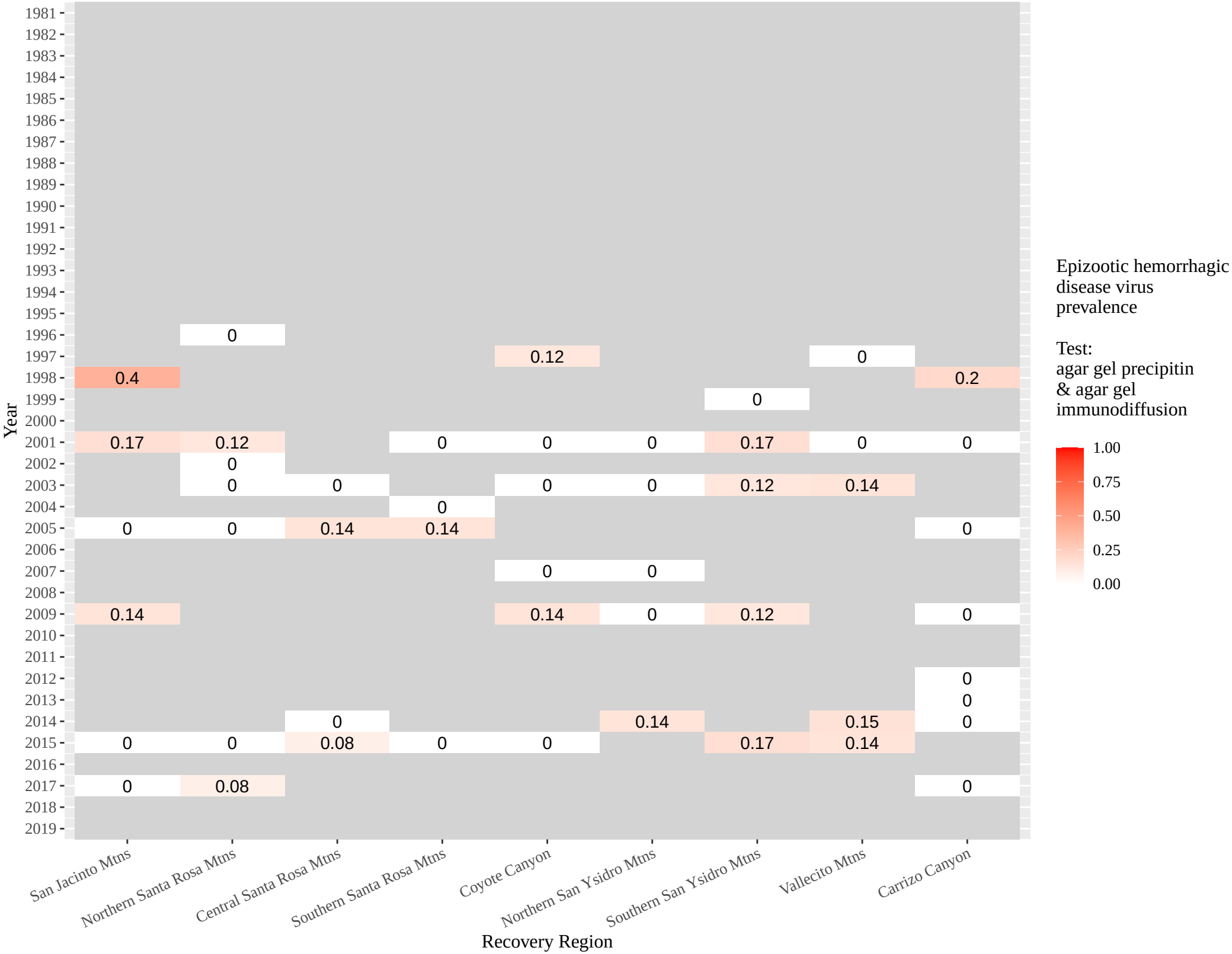
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Recovery Region
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Epizootic hemorrhagic disease virus prevalence
Test:
agar gel precipitin & agar gel immunodiffusion
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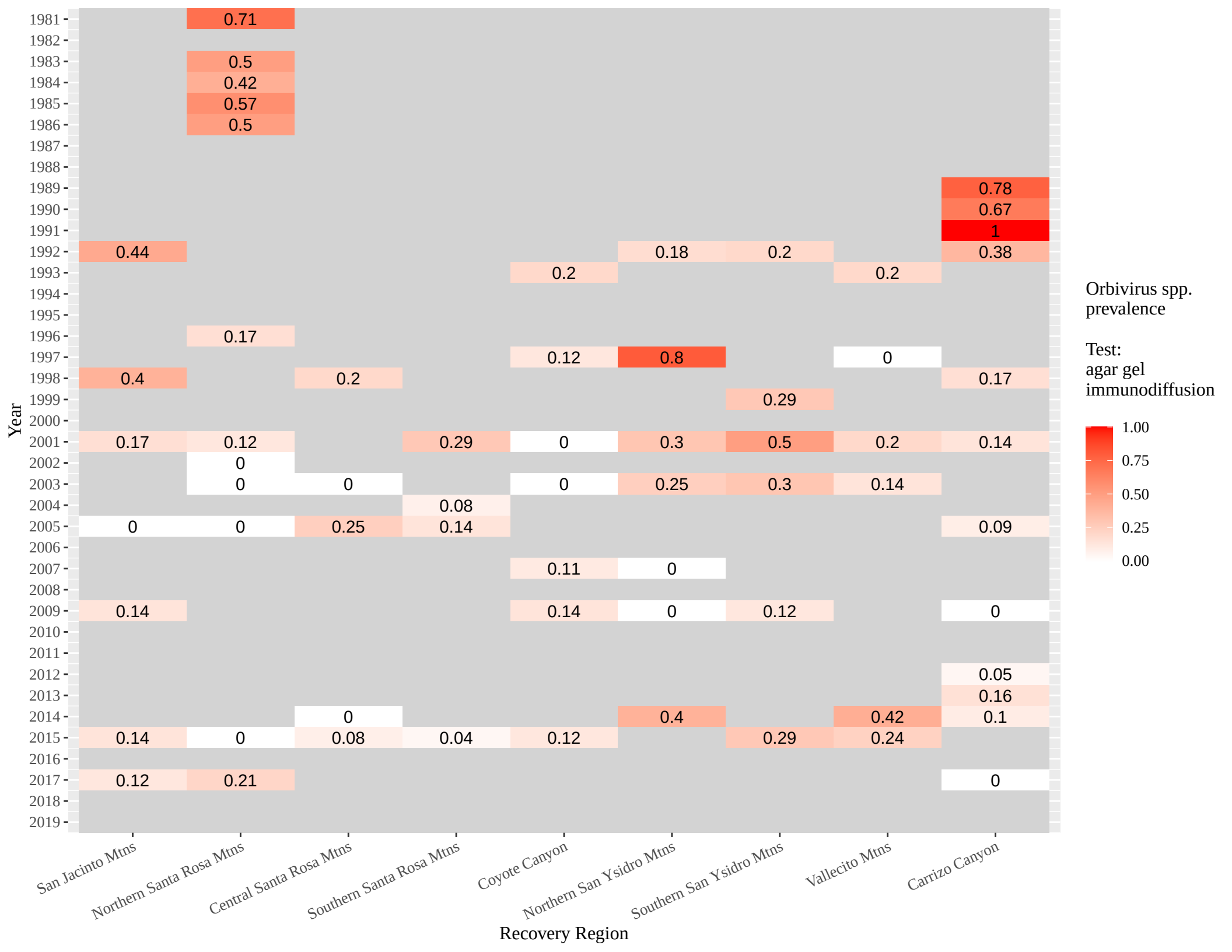
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Orbivirus spp. prevalence
Test: agar gel immunodiffusion
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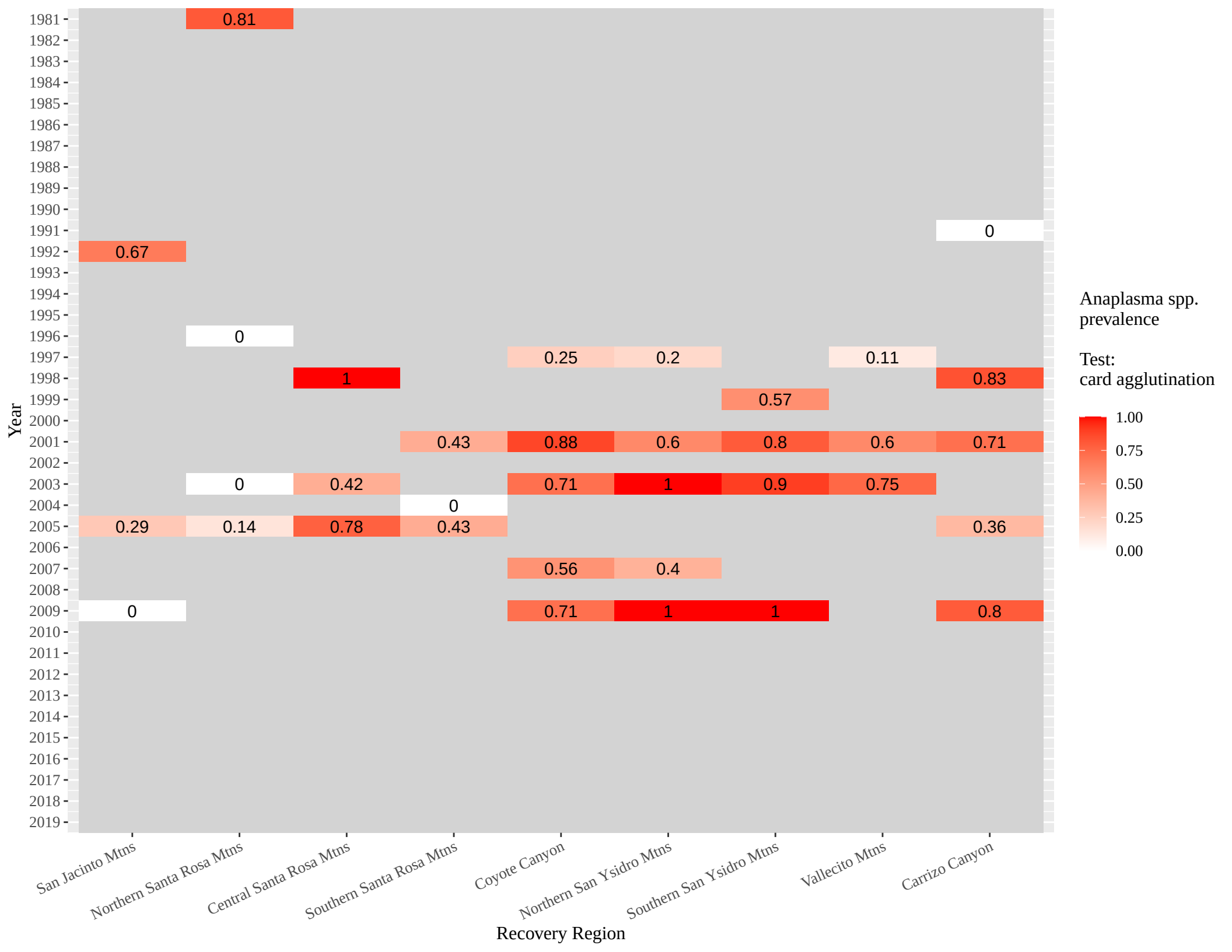
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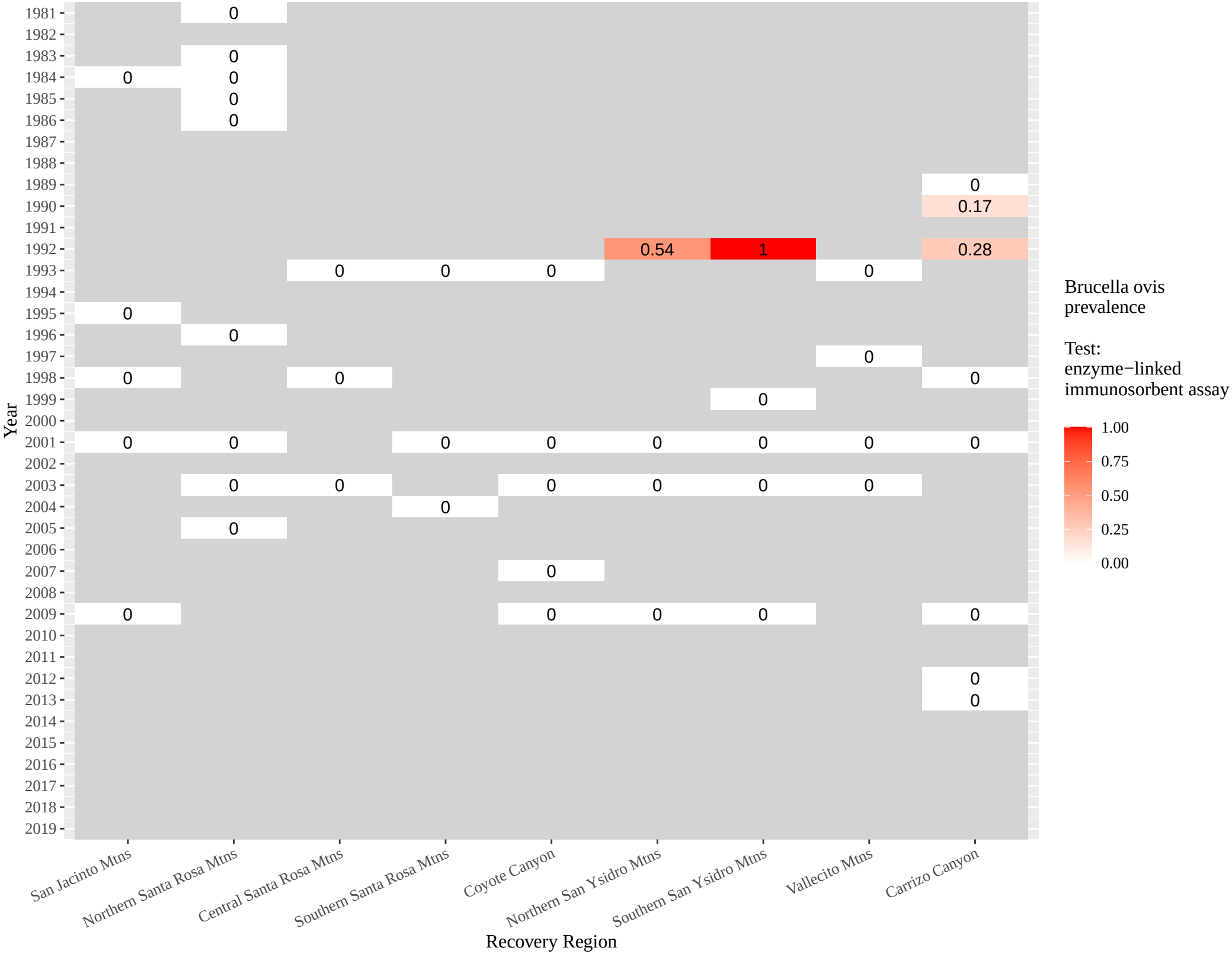
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Anaplasma spp.
prevalence
Test:
card agglutination
1.00
0.75
0.50
0.25
0.00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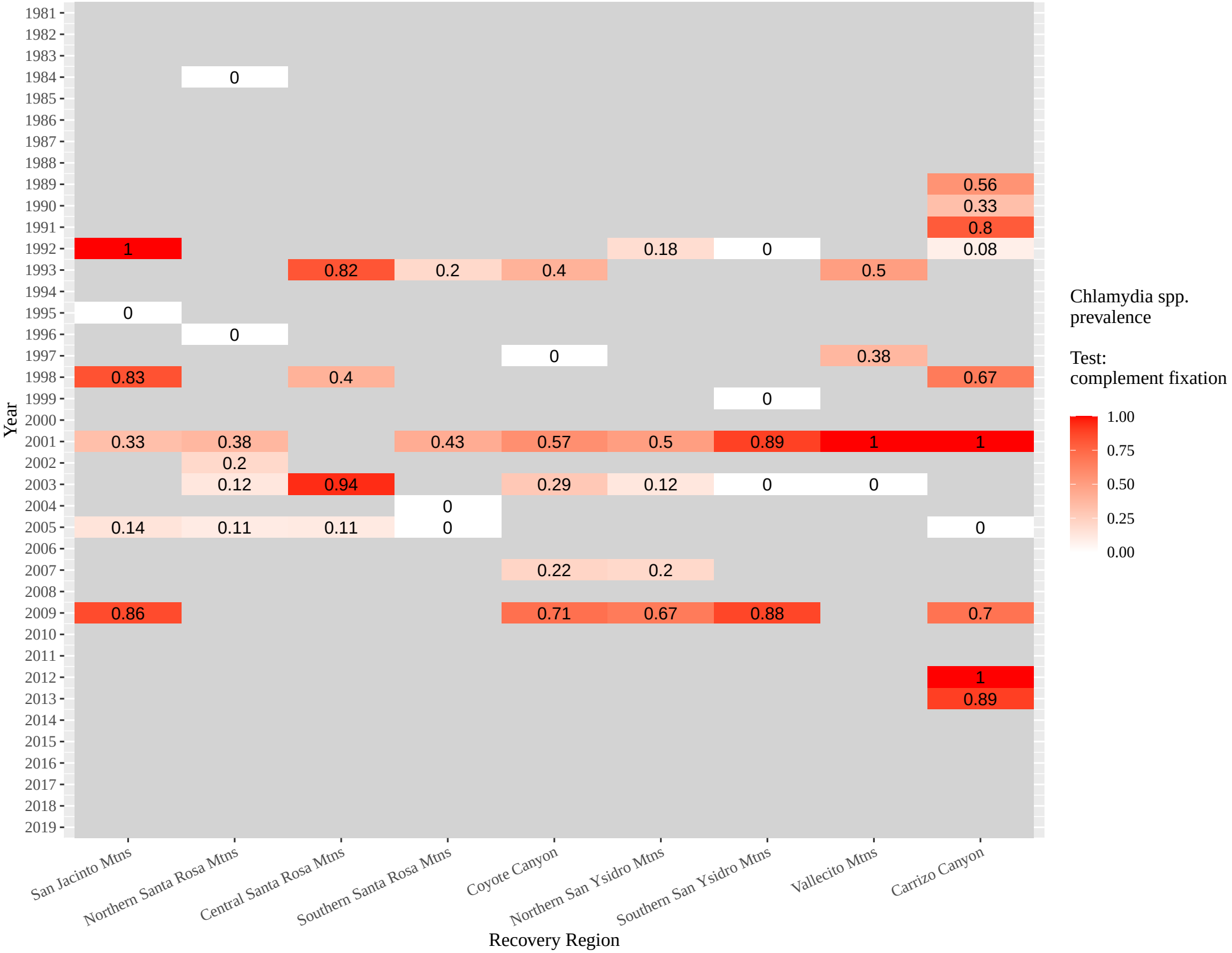
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Brucella ovis prevalence
Test: enzyme−linked immunosorbent assay
1.00
0.75
0.50
0.25
0.00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0.12
0.94
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0.67
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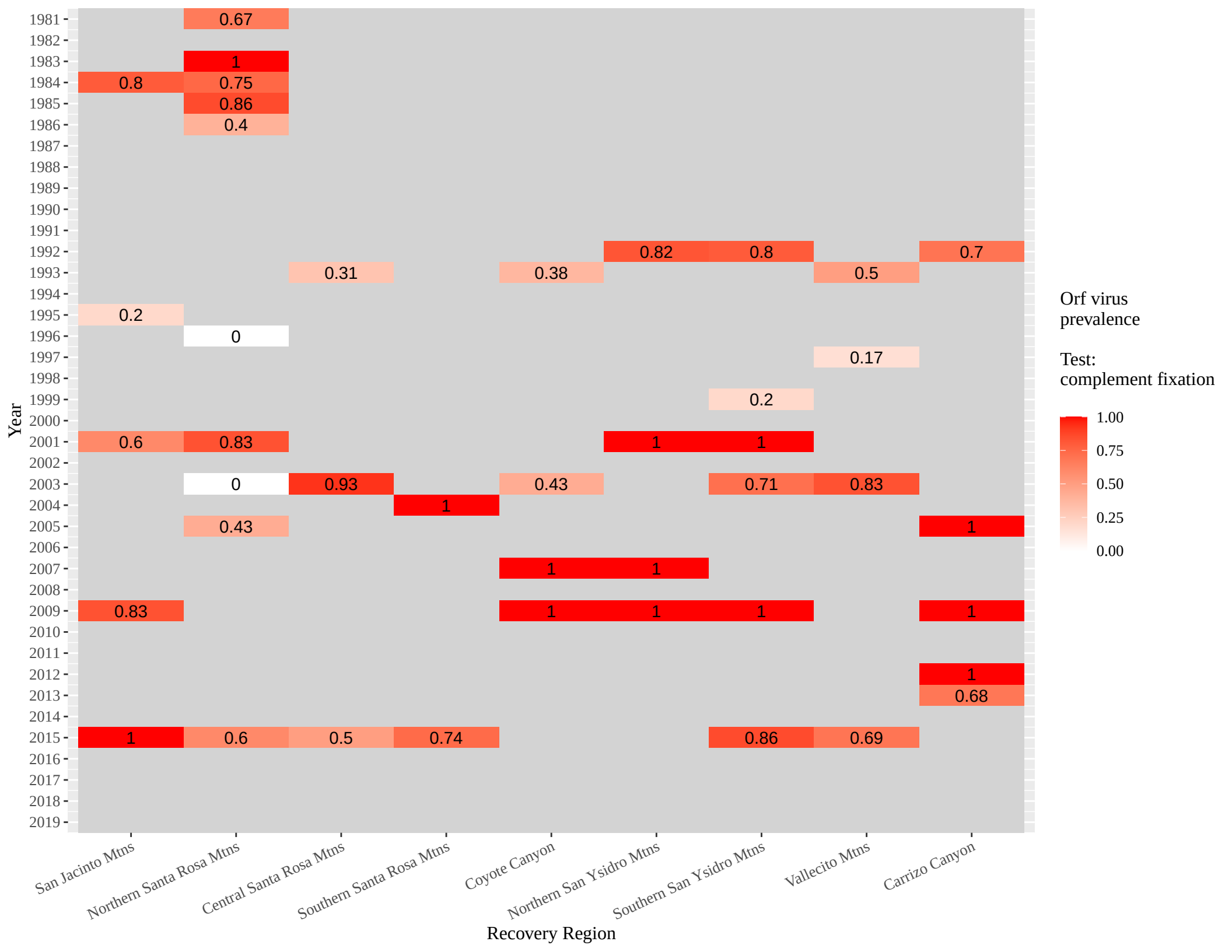
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Chlamydia spp. prevalence
Test: complement fixation
1.00
0.75
0.50
0.25
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Orf virus prevalence
Test: complement fixation
1.00
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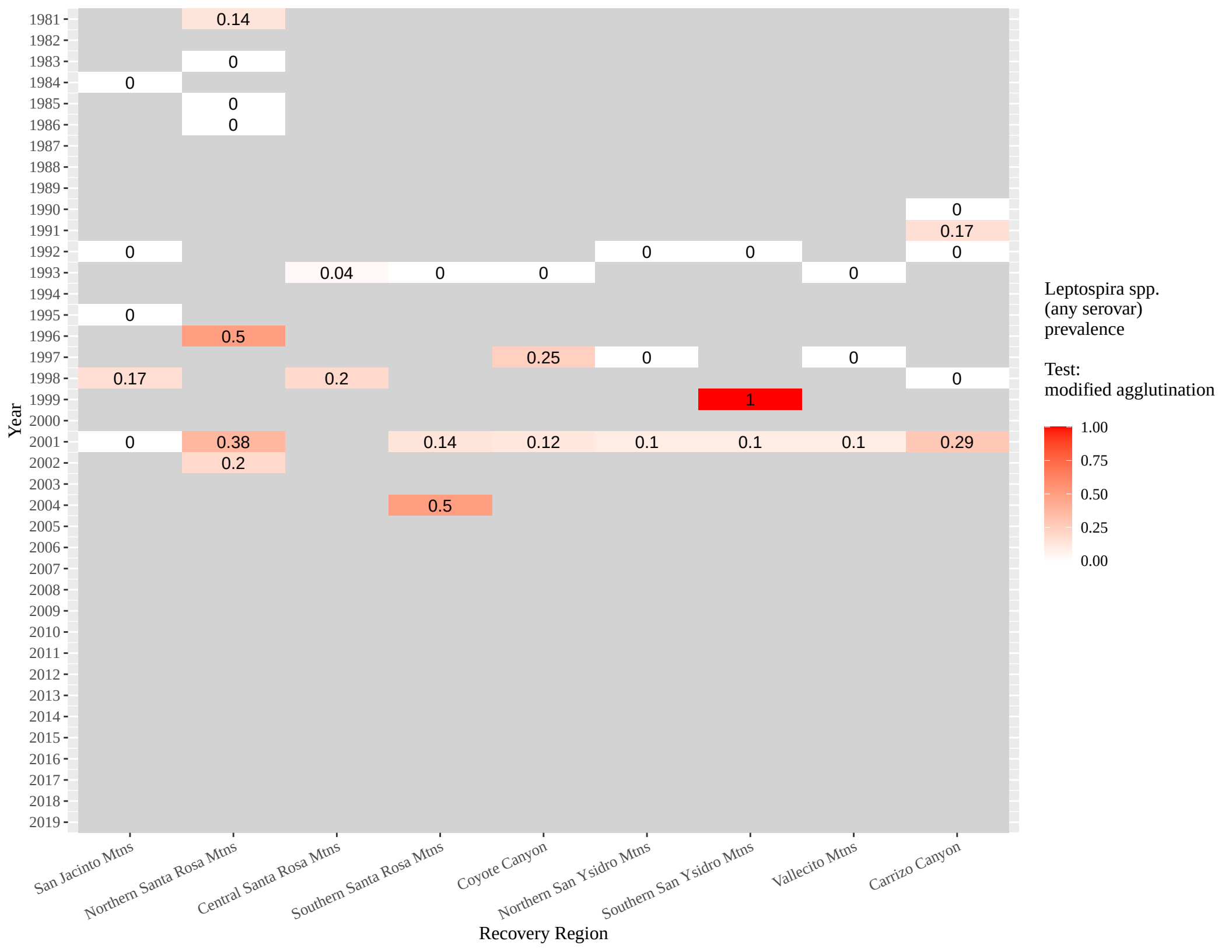
0.50
0.25
0.00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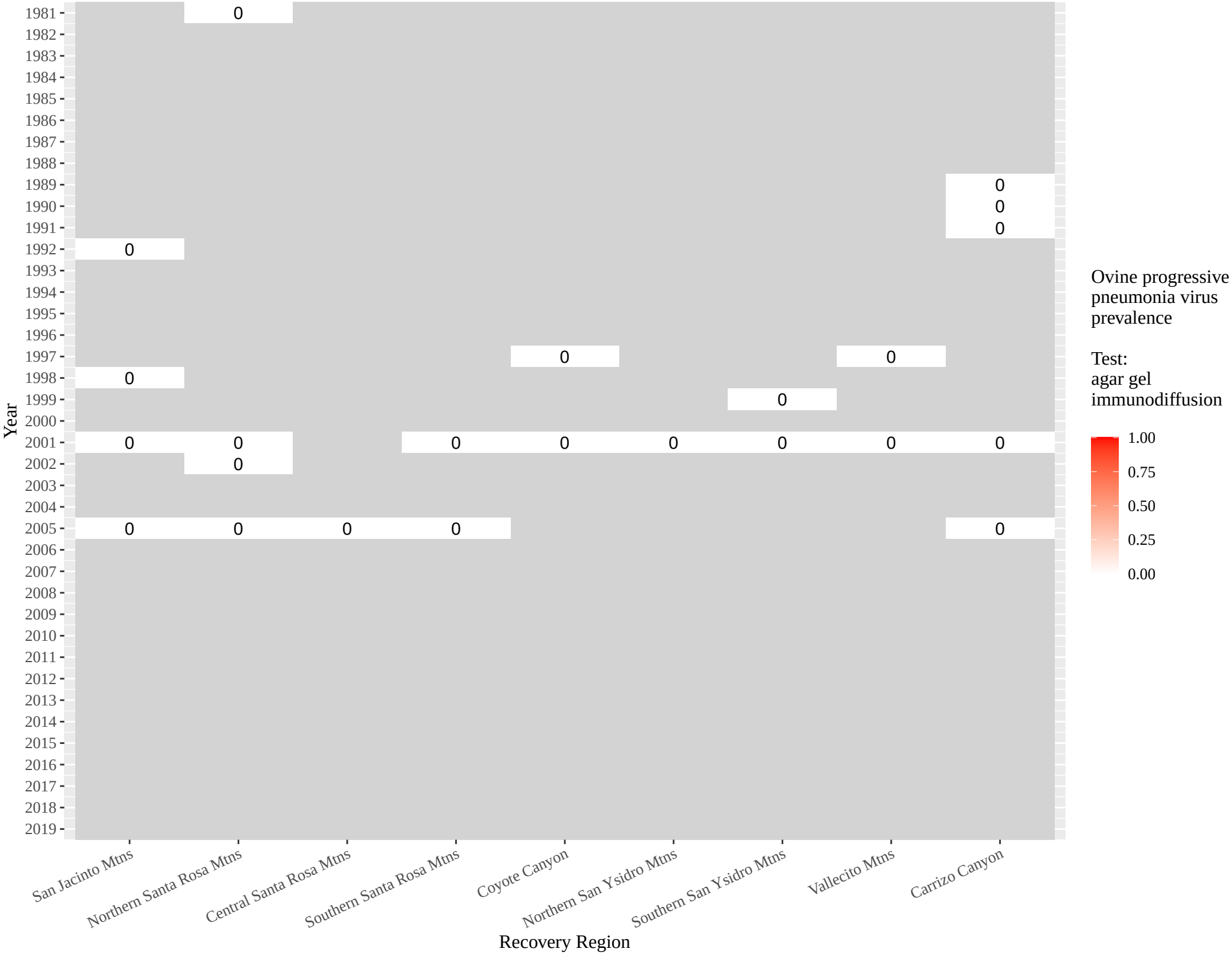
San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Leptospira spp.
(any serovar)
prevalence
Test:
modified agglutination
1.00
0.75
0.50
0.25
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Ovine progressive pneumonia virus prevalence
Test: agar gel immunodiffusion
1.00
0.75
0.50
0.25
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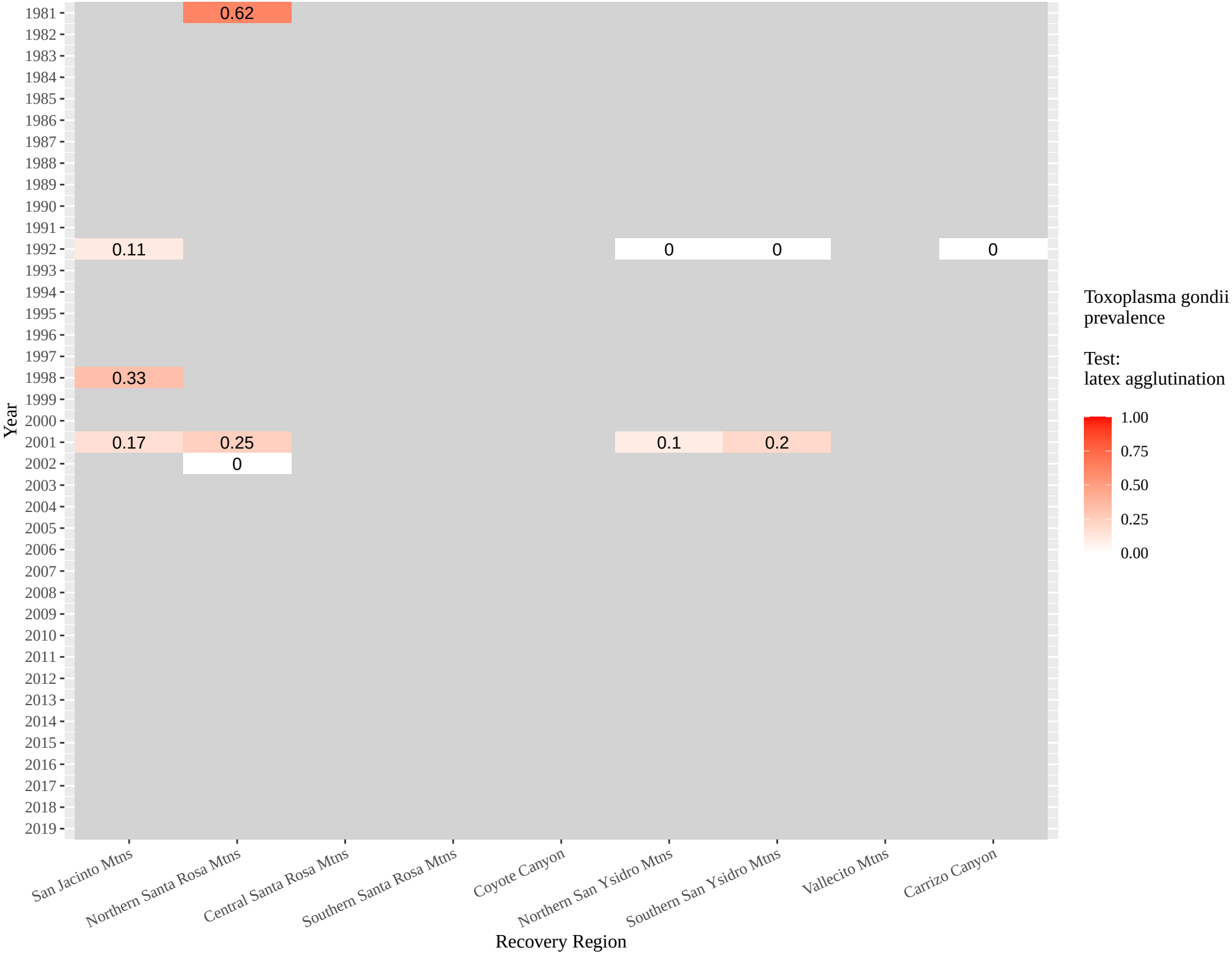
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Toxoplasma gondii prevalence
Test:
latex agglutination
1.00
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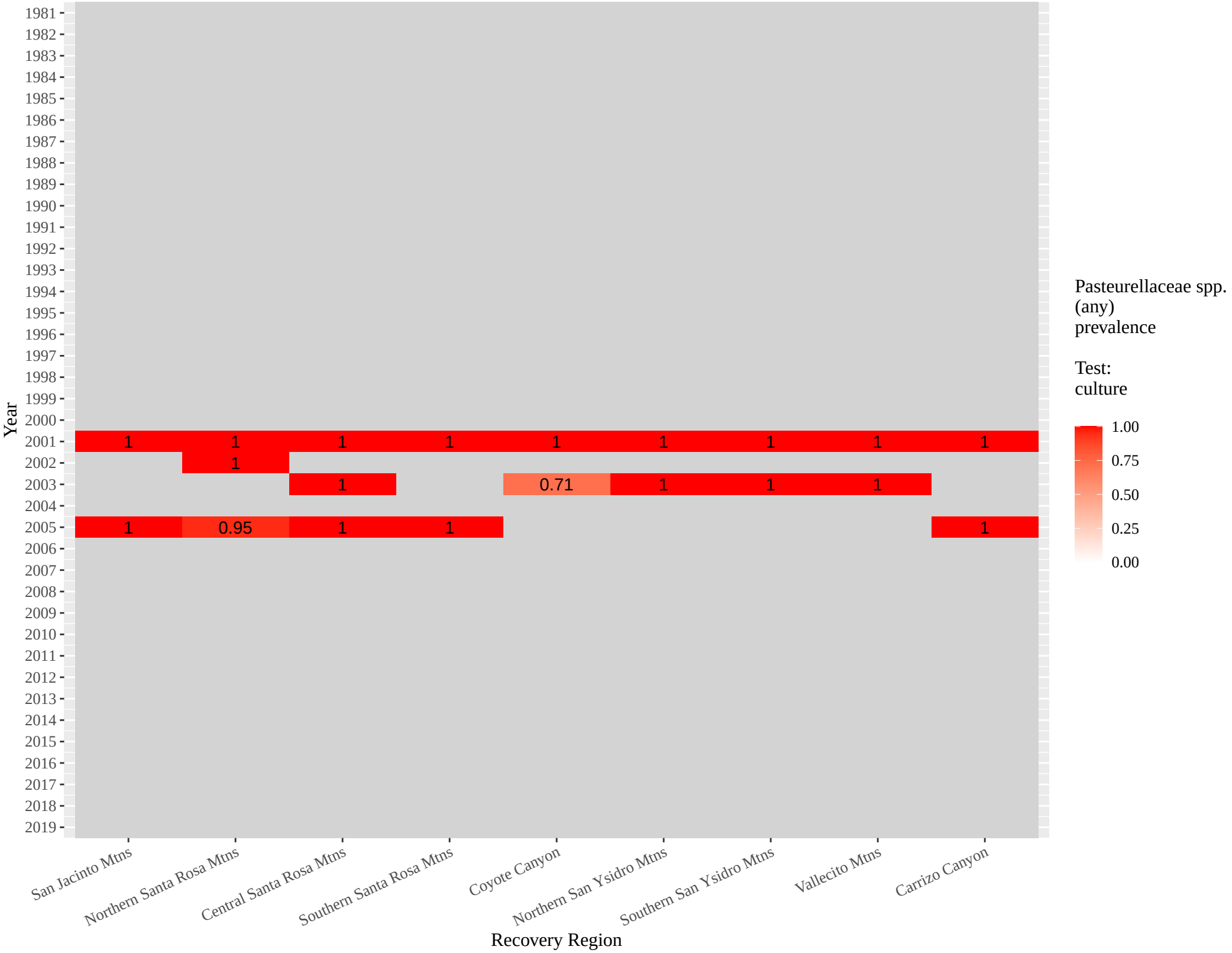
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Pasteurellaceae spp. (any) prevalence
Test: culture
1.00
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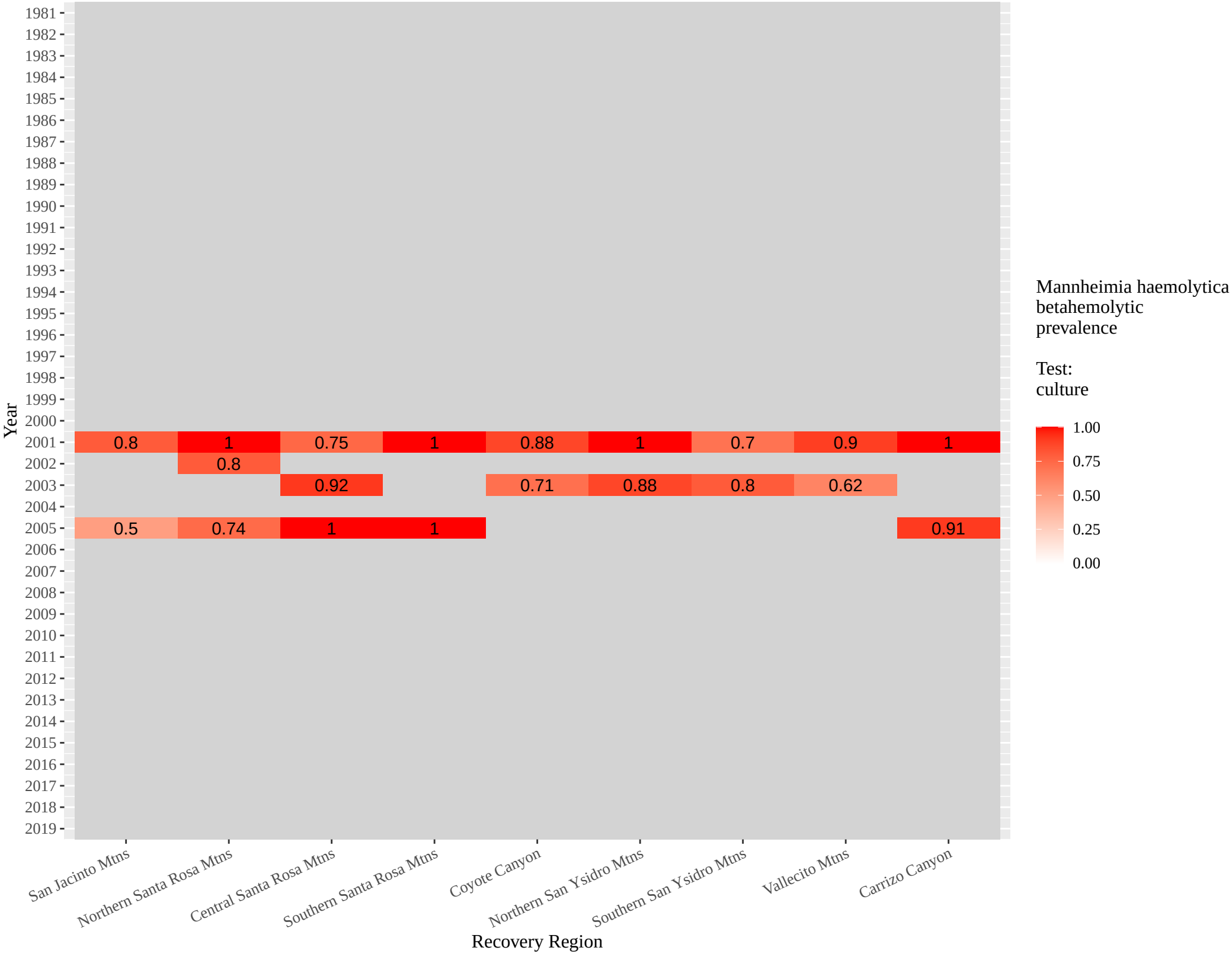
0.50
0.25
0.00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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Mannheimia haemolytica betahemolytic prevalence
Test: culture
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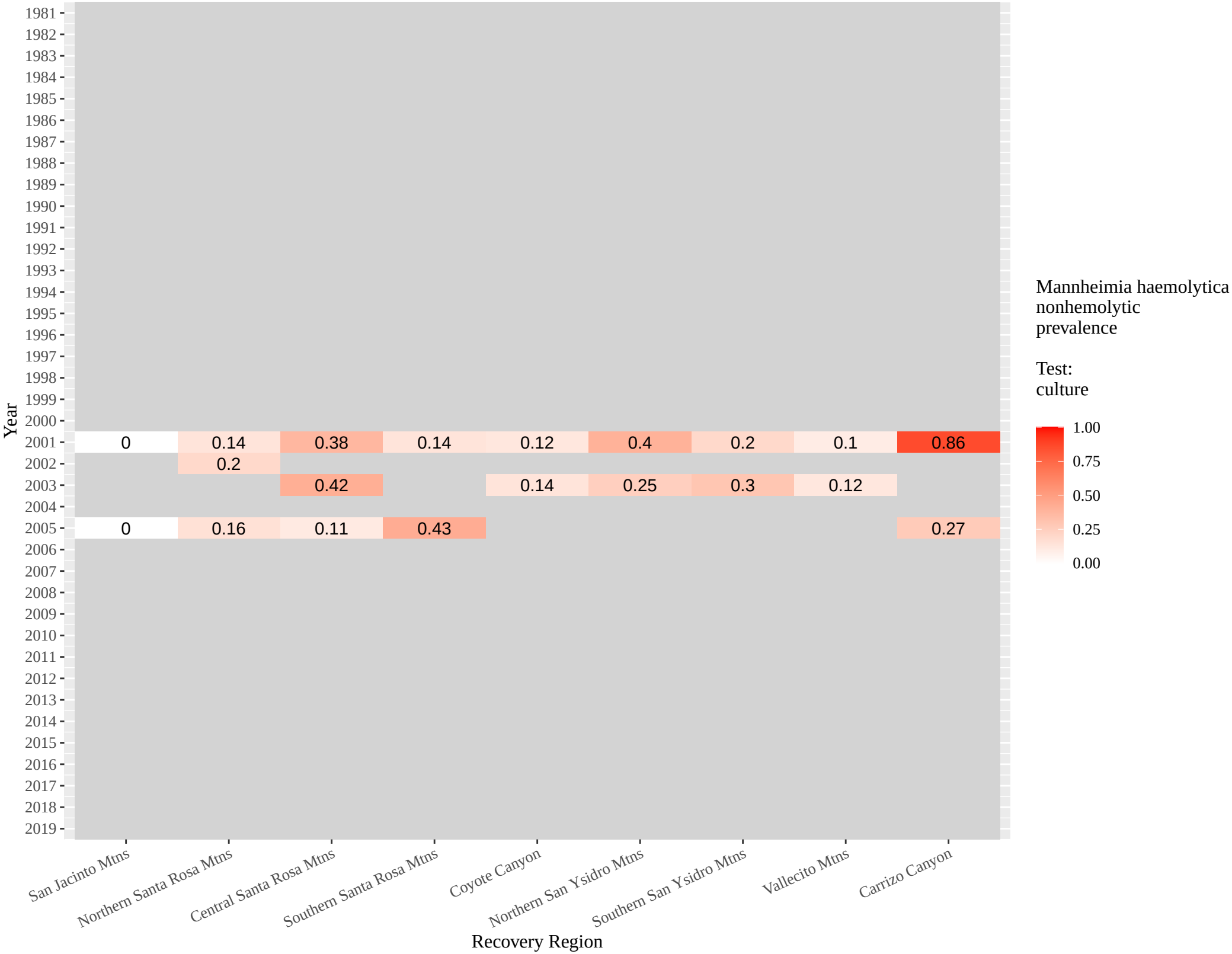
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Mannheimia haemolytica nonhemolytic prevalence
Test: culture
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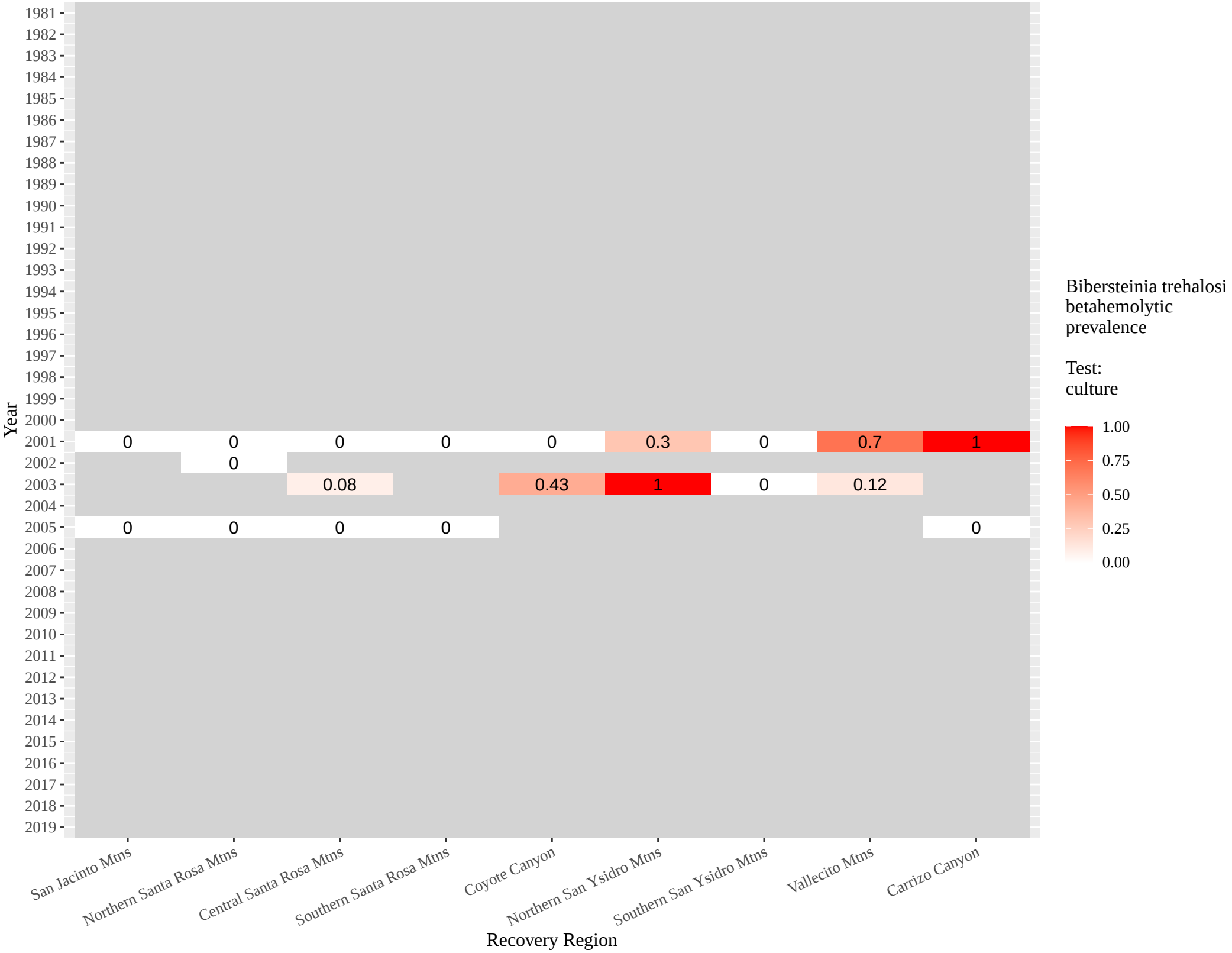
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bibersteinia trehalosi betahemolytic prevalence
Test: culture
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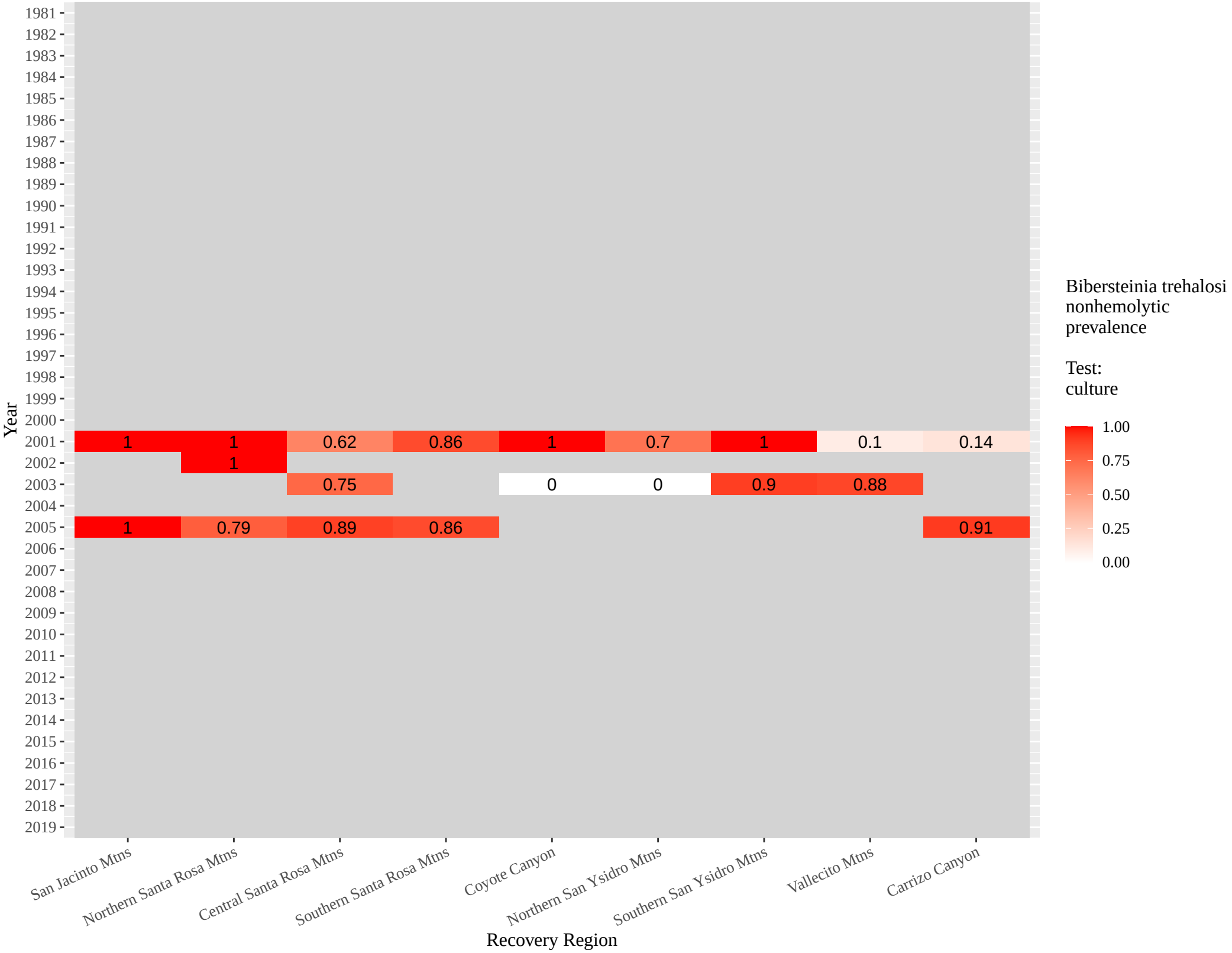
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Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Bibersteinia trehalosi nonhemolytic prevalence
Test: culture
1.00
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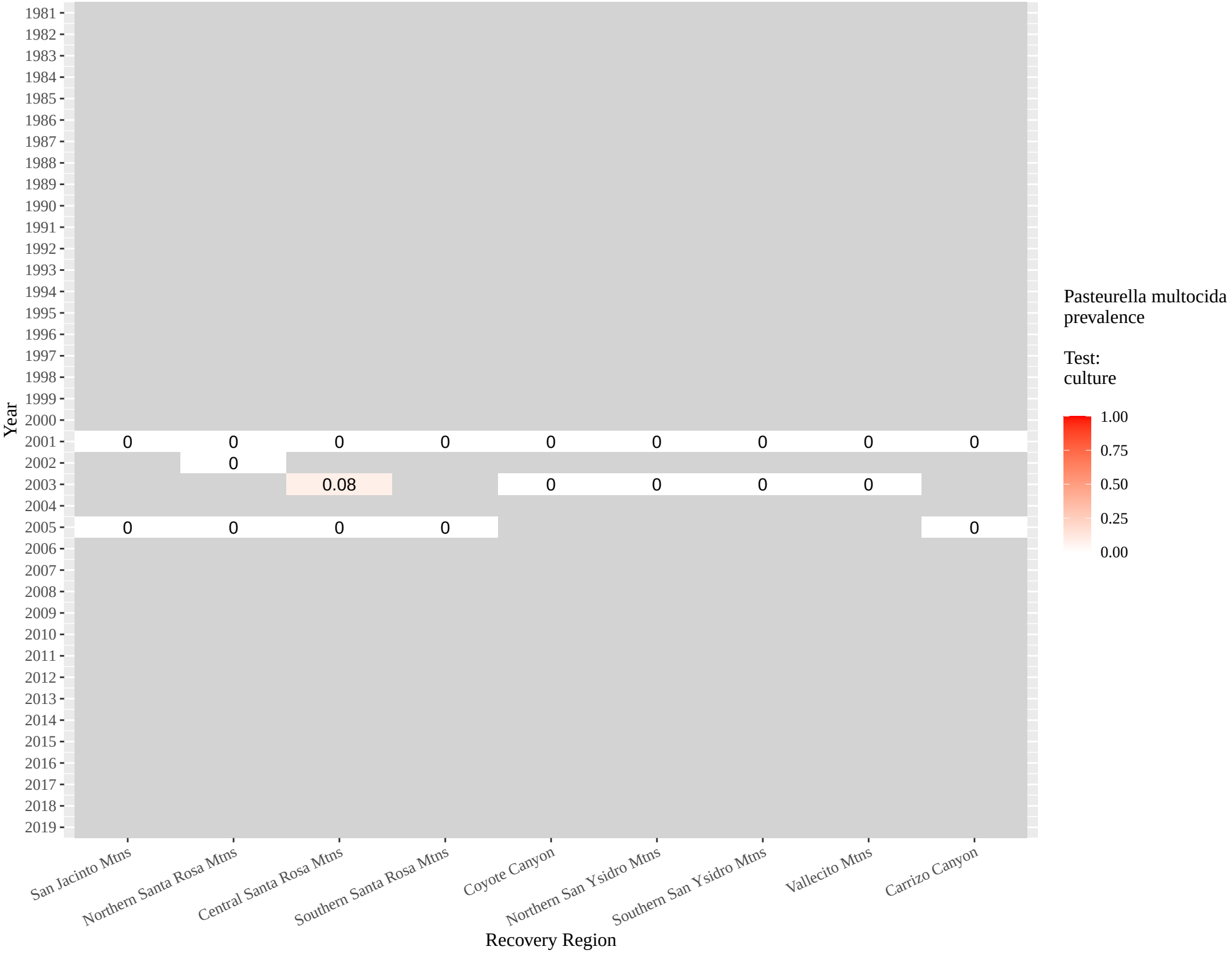
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San Jacinto Mtns
Northern Santa Rosa Mtns
Central Santa Rosa Mtns
Southern Santa Rosa Mtns
Coyote Canyon
Northern San Ysidro Mtns
Southern San Ysidro Mtns
Vallecito Mtns
Carrizo Canyon
Recovery Region
Pasteurella multocida prevalence
Test: culture
1.00
0.75
0.50
0.25
0.00