



Landbird Monitoring 2001 - 2010 Annual Report

Channel Islands National Park

Natural Resource Data Series NPS/MEDN/NRDS—2013/552



ON THE COVER

Song Sparrow (*Melospiza melodia*) on San Miguel Island. Photo by Brad Sillasen with permission.

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September 2013

U.S. Department of the Interior
National Park Service
Natural Resource Program Center
Fort Collins, Colorado

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Please cite this publication as:

Dye, L. C. and T. J. Coonan, 2013. Landbird monitoring 2001-2010 annual report, Channel Islands National Park. Natural Resource Data Series NPS/MEDN/NRDS—2013/xxx. National Park Service, Fort Collins, Colorado.

Contents

	Page
Figures.....	v
Tables.....	vi
Appendices.....	vi
Summary of Landbird Monitoring in 2001-2010	1
Literature Cited	13

Figures

	Page
Figure 1. Patterns of species occurrences on Santa Barbara island between 1993-2010.....	9
Figure 2. Patterns of species occurrences on Anacapa island between 1993-2010	10
Figure 3. Patterns of species occurrences on San Miguel Island between 1993-2010	11
Figure 4. Patterns of species occurrences on Santa Rosa Island between 1993-2010	12

Tables

	Page
Table 1. Start and end dates of landbird monitoring survey tours on each island in 2001-2010, with the number of line transects or 10-minute point counts listed for each tour.	1
Table 2. Summary of landbird monitoring at Channel Islands National Park 2001-2010.....	3
Table 3. Number of individuals of each species detected during bird surveys on all islands, 2001-2010	3

Appendices

	Page
Appendix A: Relative Abundance and Frequency of Landbirds from Point Counts	14
Appendix B: Relative Abundance of Landbird Species by Island	24
Appendix C: Results of Line Transect Sampling	171
Appendix D: Relative Abundance by Habitat and Island	175

Summary of Landbird Monitoring in 2001-2010

Landbird monitoring has been conducted on Anacapa, Santa Barbara, San Miguel and Santa Rosa Islands at Channel Islands National Park since 1993 (Coonan et al. 2011c). The original protocol (van Riper et al. 1988, Super et al. 1991) primarily utilized line transects, and in 2001 monitoring began shifting to point counts at variable circular plots based on a program review (McEachern 2000). These revised methods were formally described in a recent protocol (Coonan et al. 2011b). Annual reports have been produced for 1993-2000 and most recently for 2011 (Coonan et al. 2011a). This report summarizes the landbird data collected from 2001 through 2010, during which time the new monitoring methodology was developed and phased in.

Landbird monitoring was conducted with both old and new methods during the spring of each year for 3 years. No fall surveys were conducted. Tour dates are listed in Table 1 and years monitoring was conducted are summarized in Table 2. Table 3 presents the number of individuals of each species detected annually during landbird monitoring.

Table 1. Start and end dates of landbird monitoring survey tours on each island in 2001-2010, with the number of line transects or 10-minute point counts listed for each tour.

Island	Tour Code	Start Date	End Date	# Line Transects	# Point Counts
Anacapa	A	3/13/2001	3/16/2001	1	2
Anacapa	B	3/5/2003	3/5/2003	1	6
Anacapa	B	3/19/2004	3/19/2004	1	7
Anacapa	F	4/5/2005	4/5/2005	1	8
Anacapa	A	4/7/2006	4/7/2006		5
Anacapa	B	3/10/2009	3/11/2009	1	4
Anacapa	B	3/22/2010	3/23/2010	1	7
Santa Barbara	B	3/20/2001	3/27/2001	3	7
Santa Barbara	A	2/26/2002	3/5/2002	3	20
Santa Barbara	A	2/25/2003	3/4/2003	4	27
Santa Barbara	A	3/9/2004	3/18/2004	3	20
Santa Barbara	A	3/17/2005	3/23/2005	3	30
Santa Barbara	A	3/22/2007	3/26/2007		24
Santa Barbara	A	3/20/2008	3/25/2008		22
Santa Barbara	A	3/3/2009	3/8/2009	2	24
Santa Barbara	A	2/28/2010	3/9/2010		33
San Miguel	D	4/25/2001	4/30/2001	5	
San Miguel	D	4/23/2002	4/30/2002	5	34
San Miguel	F	5/24/2002	5/24/2002		5
San Miguel	D	4/1/2003	4/8/2003	5	38
San Miguel	E	4/29/2003	5/6/2003		2
San Miguel	C	4/13/2004	4/20/2004	3	19
San Miguel	D	4/27/2004	5/4/2004	2	21
San Miguel	E	4/12/2005	4/26/2005	5	40
San Miguel	B	4/13/2006	4/16/2006	4	36
San Miguel	C	4/25/2006	5/3/2006	1	4
San Miguel	B	4/27/2007	5/11/2007	4	38
San Miguel	C	4/15/2008	4/22/2008		9

Table 2. Start and end dates of landbird monitoring survey tours on each island in 2001-2010, with the number of line transects or 10-minute point counts listed for each tour (continued).

Island	Tour Code	Start Date	End Date	# Line Transects	# Point Counts
San Miguel	J	5/6/2008	5/13/2008		7
San Miguel	E	5/13/2008	5/20/2008		24
San Miguel	C	3/31/2009	4/7/2009		3
San Miguel	E	4/14/2009	4/21/2009		2
San Miguel	F	4/21/2009	4/28/2009	1	22
San Miguel	H	5/5/2009	5/12/2009		6
San Miguel	L	5/12/2009	5/19/2009		7
San Miguel	D	3/30/2010	4/6/2010		3
San Miguel	F	4/6/2010	4/13/2010		13
San Miguel	H	4/13/2010	4/20/2010		2
San Miguel	J	4/20/2010	4/27/2010		6
San Miguel	L	4/27/2010	5/4/2010		7
San Miguel	N	5/11/2010	5/18/2010		8
Santa Rosa	C	4/6/2001	4/10/2001		37
Santa Rosa	C	4/3/2002	4/10/2002		55
Santa Rosa	E	5/15/2002	5/22/2002		44
Santa Rosa	G	5/29/2002	6/5/2002		8
Santa Rosa	C	3/19/2003	3/26/2003		67
Santa Rosa	F	4/16/2003	4/23/2003		9
Santa Rosa	G	5/14/2003	5/21/2003		57
Santa Rosa	H	5/28/2003	6/4/2003		3
Santa Rosa	I	6/11/2003	6/18/2003		3
Santa Rosa	D	4/25/2006	5/2/2006		43
Santa Rosa	E	5/9/2006	5/16/2006		56
Santa Rosa	F	5/23/2006	5/30/2006		13
Santa Rosa	G	6/6/2006	6/13/2006		53
Santa Rosa	H	6/20/2006	6/27/2006		34
Santa Rosa	B	4/9/2008	4/14/2008		55
Santa Rosa	D	4/22/2008	4/29/2008		6
Santa Rosa	F	5/20/2008	5/27/2008		55
Santa Rosa	G	6/17/2008	6/24/2008		39
Santa Rosa	D	4/7/2009	4/14/2009		42
Santa Rosa	G	4/22/2009	4/29/2009		18
Santa Rosa	I	5/6/2009	5/13/2009		43
Santa Rosa	J	5/20/2009	5/27/2009		30
Santa Rosa	K	6/3/2009	6/10/2009		12
Santa Rosa	C	3/23/2010	3/30/2010		4
Santa Rosa	E	4/1/2010	4/7/2010		18
Santa Rosa	G	4/6/2010	4/13/2010		3
Santa Rosa	I	4/14/2010	4/21/2010		21
Santa Rosa	K	4/20/2010	4/27/2010		3
Santa Rosa	M	5/11/2010	5/18/2010		2
Santa Rosa	O	5/18/2010	5/25/2010		3
Santa Rosa	P	5/26/2010	5/31/2010		23
Santa Rosa	Q	6/1/2010	6/8/2010		20

Table 3. Summary of landbird monitoring at Channel Islands National Park 2001-2010. The “x” denotes monitoring was conducted in that year. Data were not collected in all years due to nesting seabirds and staffing shortages.

Island	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Anacapa	x		x	x	x	x			x	x
Santa Barbara	x	x	x	x	x		x	x	x	x
San Miguel	x	x	x	x	x	x	x	x	x	x
Santa Rosa	x	x	x			x		x	x	x

Table 3. Number of individuals of each species detected during bird surveys on all islands, 2001-2010. Data include detections on both line transects and point counts, and do not include birds observed before or after the counts.

Common Name	Scientific Name	Sp. Code	01	02	03	04	05	06	07	08	09	10
Mallard	<i>Anas platyrhynchos</i>	MALL	2	5	7			3			1	2
Turkey Vulture	<i>Cathartes aura</i>	TUVU										1
Sharp-shinned Hawk	<i>Accipiter striatus</i>	SSHA									1	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	RTHA	8	12	12	5	3	20	7	8	8	7
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BAEA						1		1		3
Northern Harrier	<i>Circus cyaneus</i>	NOHA	1	9	15	21	24	21	10	6	2	7
Peregrine Falcon	<i>Falco peregrinus</i>	PEFA	1	4	4	8	6	5	4	3	1	6
American Kestrel	<i>Falco sparverius</i>	AMKE	8	24	21	21	10	4	3		2	2
California Quail	<i>Callipepla californica</i>	CAQU	1	13	8			29		5	4	12
Virginia Rail	<i>Rallus limicola</i>	VIRA									1	
Mountain Plover	<i>Charadrius montanus</i>	MOPL								1		
Mourning Dove	<i>Zenaida macroura</i>	MODO	1	1	1	1		11		2	8	2
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	ECDO								1		
Barn Owl	<i>Tyto alba</i>	BAOW	3	2	2		2					
Short-eared Owl	<i>Asio flammeus</i>	SEOW		2	1	1			1			
White-throated Swift	<i>Aeronautes saxatalis</i>	WTSW	2		1			1		1		3

Table 3. Number of individuals of each species detected during bird surveys on all islands, 2001-2010. Data include detections on both line transects and point counts, and do not include birds observed before or after the counts (continued).

Common Name	Scientific Name	Sp. Code	01	02	03	04	05	06	07	08	09	10
Hummingbirds (unidentified)		HUMM		1	2	2	6	81		6	8	13
Anna's Hummingbird	<i>Calypte anna</i>	ANHU	3	15	14	5	4	28	5	6		2
Rufous Hummingbird	<i>Selasphorus rufus</i>	RUHU						8				
Allen's Hummingbird	<i>Selasphorus sasin</i>	ALHU	51	97	80	29	33	77	40	55	53	42
Northern Flicker	<i>Colaptes auratus</i>	NOFL	1	2	4					1		
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	ACWO						1		2	2	
Western Kingbird	<i>Tyrannus verticalis</i>	WEKI							2			
Black Phoebe	<i>Sayornis nigricans</i>	BLPH	3	4	6		2	11	1	4	3	6
Say's Phoebe	<i>Sayornis saya</i>	SAPH	1	6	15	4				1	7	4
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	PSFL	20	58	70			189	2	98	106	52
Olive-sided Flycatcher	<i>Contopus borealis</i>	OSFL							2			
Violet-green Swallow	<i>Tachycineta thalassina</i>	VGSW						1	1			
Barn Swallow	<i>Hirundo rustica</i>	BARS	1	15	16	2	1	64	3	11	12	7
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	CLSW				1	1	1				
Loggerhead Shrike	<i>Lanius ludovicianus</i>	LOSH		3				8		4	4	8
Cedar Waxwing	<i>Bombycilla cedrorum</i>	CEWA						1				1
House Wren	<i>Troglodytes aedon</i>	HOWR						1				
Bewick's Wren	<i>Thryomanes bewickii</i>	BEWR	64	131	230	26	21	247		123	185	75
Rock Wren	<i>Salpinctes obsoletus</i>	ROWR	7	13	12	7	2	17		13	17	14
Northern Mockingbird	<i>Mimus polyglottos</i>	NOMO		2	1			18	1	12	7	13
Bushtit	<i>Psaltiriparus minimus</i>	BUSH									1	1
Red-breasted Nuthatch	<i>Sitta canadensis</i>	RBNU						2				
Orange-crowned Warbler	<i>Vermivora celata</i>	OCWA	275	335	382	272	317	608	232	238	313	227
Yellow Warbler	<i>Dendroica petechia</i>	YEWA			1							2
Yellow-rumped Warbler	<i>Dendroica coronata</i>	YRWA			1	1	4	5	8	1	1	
Townsend's Warbler	<i>Dendroica townsendi</i>	TOWA						1	3	5		

Table 3. Number of individuals of each species detected during bird surveys on all islands, 2001-2010. Data include detections on both line transects and point counts, and do not include birds observed before or after the counts (continued).

Common Name	Scientific Name	Sp. Code	01	02	03	04	05	06	07	08	09	10
Common Yellowthroat	<i>Geothlypis trichas</i>	COYE							1			4
Wilson's Warbler	<i>Wilsonia pusilla</i>	WIWA		4				2	11	1		
Hutton's Vireo	<i>Vireo huttoni</i>	HUVI			2			4			5	
Western Meadowlark	<i>Sturnella neglecta</i>	WEME	148	297	358	213	216	453	99	188	347	306
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	RWBL									1	
Hooded Oriole	<i>Icterus cucullatus</i>	HOOR							5			
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	BRBL						1				
Brown-headed Cowbird	<i>Molothrus ater</i>	BHCO							1			
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	BHGR						1	4			
House Finch	<i>Carpodacus mexicanus</i>	HOFI	34	107	146	6	2	280	7	109	91	41
Lawrence's Goldfinch	<i>Carduelis lawrencei</i>	LAGO							1			
Lesser Goldfinch	<i>Carduelis psaltria</i>	LEGO	1	44	83			174	1	46	41	5
American Goldfinch	<i>Carduelis tristis</i>	AMGO	2		1						2	
Lark Bunting	<i>Calamospiza melanocorys</i>	LABU							2			
Savannah Sparrow	<i>Passerculus sandwichensis</i>	SAVS	5				28		8	20	2	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	GRSP						4		2	5	2
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>	RCSP								2		
Dark-eyed Junco	<i>Junco hyemalis</i>	DEJU								1		
Chipping Sparrow	<i>Spizella passerina</i>	CHSP		101	118			290		114	178	78
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	WCSP	52	40	96	56	111	16	33	25	14	42
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	GCSP		1			6	1			2	
Song Sparrow	<i>Melospiza melodia</i>	SOSP	175	453	361	273	373	783	259	282	457	312
House Sparrow	<i>Passer domesticus</i>	HOSP				1		5			1	
European Starling	<i>Sturnus vulgaris</i>	EUST	1									
Common Raven	<i>Corvus corax</i>	CORA	26	80	81	47	58	160	91	116	120	110
Hermit Thrush	<i>Catharus guttatus</i>	HETH		3				1				
Blue-gray Gnatcatcher	<i>Poliopitila caerulea</i>	BGGN									2	

Table 3. Number of individuals of each species detected during bird surveys on all islands, 2001-2010. Data include detections on both line transects and point counts, and do not include birds observed before or after the counts (continued).

Common Name	Scientific Name	Sp. Code	01	02	03	04	05	06	07	08	09	10
Ruby-crowned Kinglet	<i>Regulus calendula</i>	RCKI					7	1	1			4
Western Tanager	<i>Piranga ludoviciana</i>	WETA							1			
Horned Lark	<i>Eremophila alpestris</i>	HOLA	50	111	149	137	169	88	97	205	130	196
Spotted Towhee	<i>Pipilo maculatus</i>	SPTO	30	122	139	1	1	400		189	231	171

Results of point count surveys are presented in Appendix A, for each island-year-species combination. Results include total number of individuals recorded, the mean number of birds per station, number of stations at which birds were recorded, and percent of stations at which birds were recorded (frequency). Graphs of mean birds per station over time for each of the park's breeding species (excluding those on Santa Cruz Island) are presented in Appendix B. Results of line transect surveys are presented in Appendix C, as the number of individuals of each species recorded on transects annually. Number of birds for point count stations for each year by habitat by island are shown in Appendix D.

The species richness graphics in Figures 1-3 present species presence/absence on each island since 1993, as determined by point counts and line transects (but not incidental sightings). Several trends are apparent in these data. First, European Starlings largely disappeared from the islands by the late 1980s. Conversely, Northern Harriers appeared on Santa Rosa in the late 2000s.

Other trends are suggested by the graphs of relative abundance over time, from point counts (Appendix B). Red-tailed Hawks were relatively more abundant on San Miguel and Santa Rosa in the early 2000s. Northern Harrier abundance peaked on San Miguel in the mid-2000s and declined as island foxes (*Urocyon littoralis*) were reintroduced and became more abundant. American Kestrels declined the late 1990s on Santa Rosa and then were not observed at point count sites from 2008-2010.

A number of species appeared to decrease over time on Santa Rosa, including California Quail, Mourning Doves, Anna's Hummingbirds, Black Phoebes and Rock Wrens. Northern Mockingbirds increased over time on Santa Rosa, as did Spotted Towhees, the most abundant species on that island. Lesser Goldfinches and House Finches increased and then decreased on Santa Rosa, peaking in 2006. Orange-crowned Warblers increased and then decreased on San Miguel, peaking in 2008. Song Sparrows were extremely abundant on San Miguel, with annual abundances of 3-5 birds per station.

Overall, bird species were observed most commonly in *Coreopsis* scrub and grassland on Santa Barbara, Anacapa and San Miguel Islands. Species richness was highest in riparian habitat in all years on Santa Rosa Island.

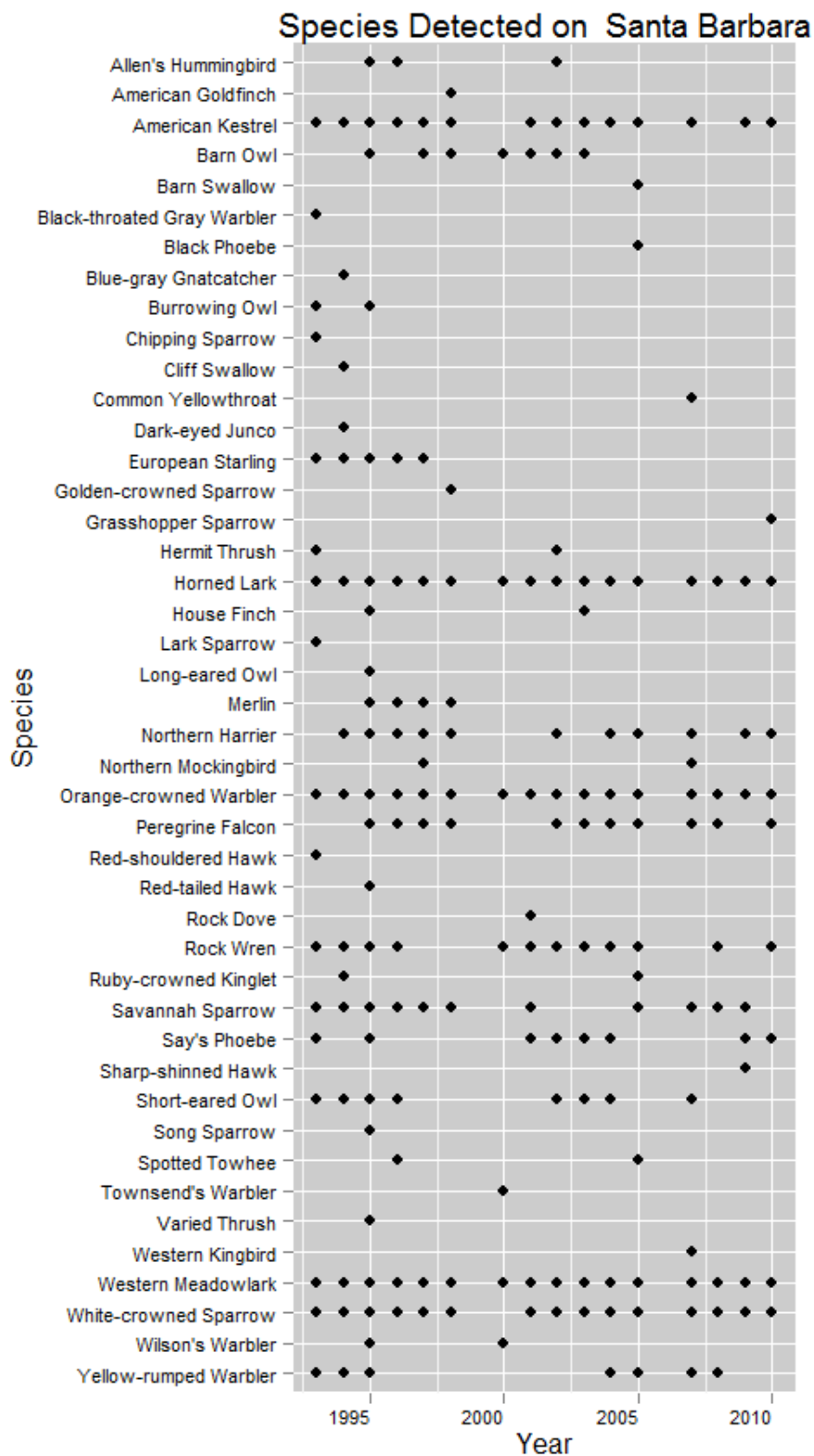


Figure 1. Patterns of species occurrences on Santa Barbara island between 1993-2010. A dot for a particular species and year indicates that the species was detected on either a line transect or point count during that year. There was no access to the island due to nesting Brown Pelicans in 2006.



Figure 2. Patterns of species occurrences on Anacapa island between 1993-2010. A dot for a particular species and year indicates that the species was detected on either a line transect or point count during that year. Monitoring was attempted several times but was not conducted in 2002, 2007 or 2008 due to weather conditions and staffing shortages.

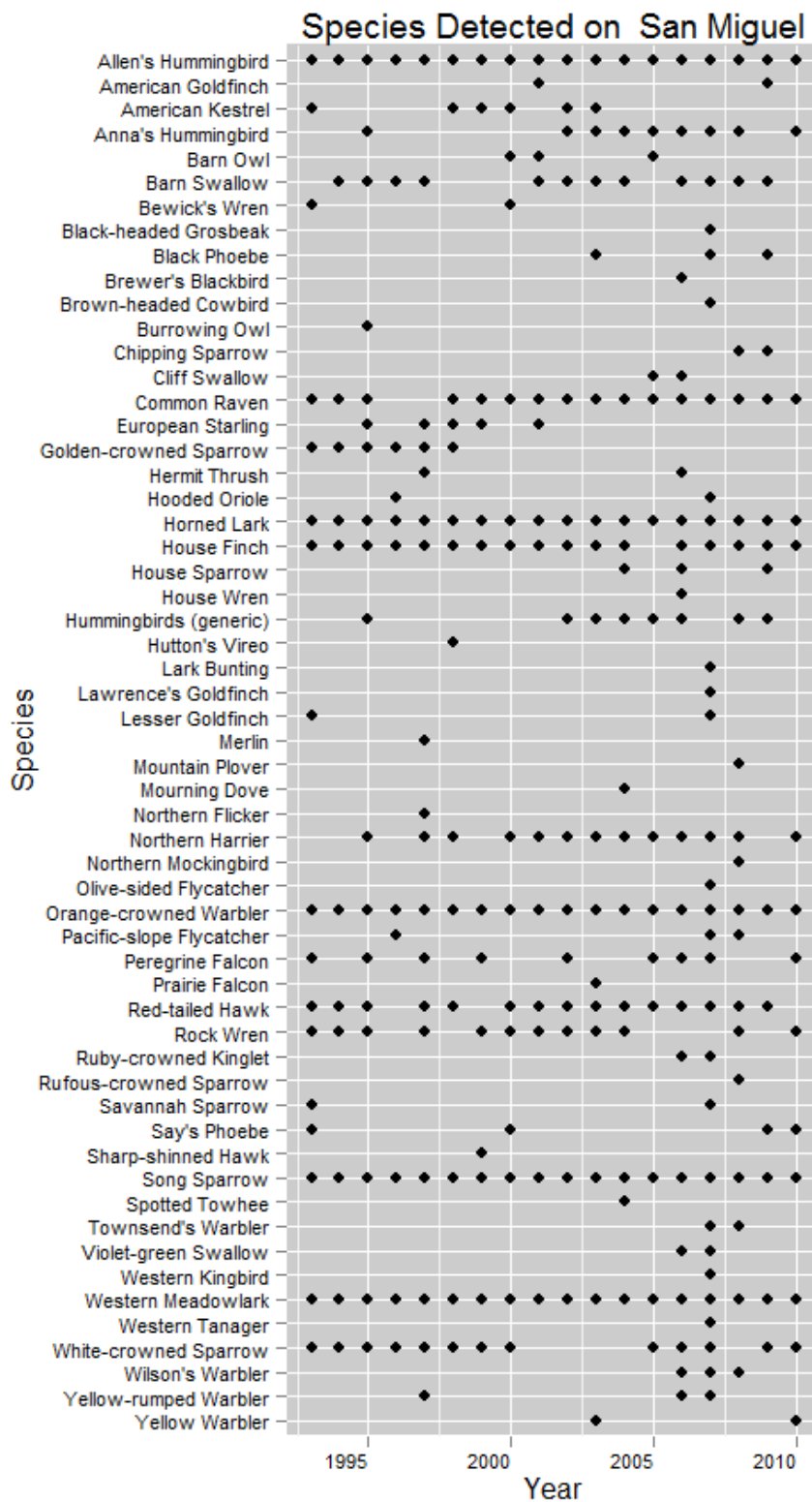


Figure 3. Patterns of species occurrences on San Miguel Island between 1993-2010. A dot for a particular species and year indicates that the species was detected on either a line transect or point count during that year.

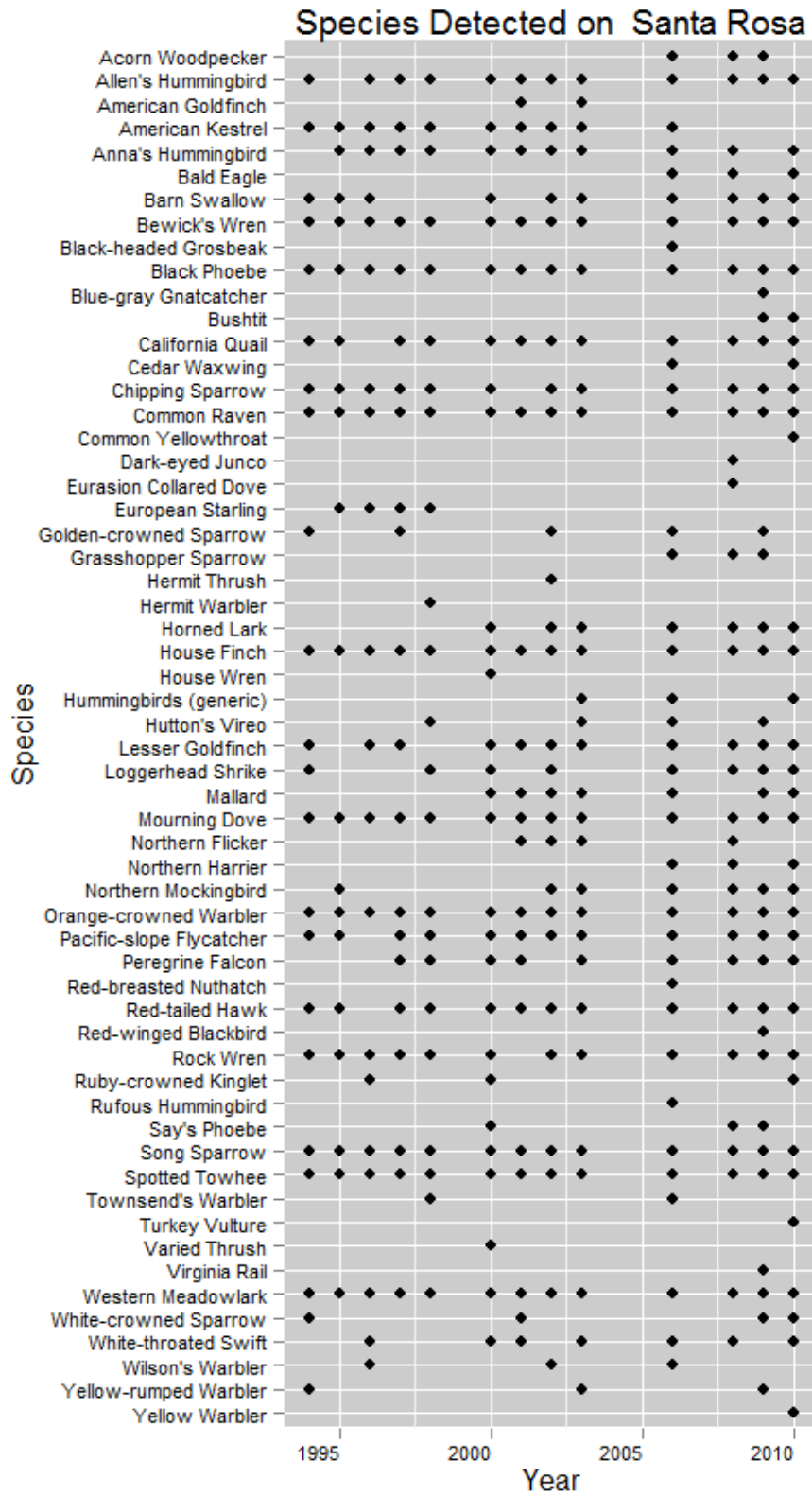


Figure 4. Patterns of species occurrences on Santa Rosa Island between 1993-2010. A dot for a particular species and year indicates that the species was detected on either a line transect or point count during that year. Monitoring was not conducted in 2004, 2005, or 2007 due to staffing shortages.

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Appendix A: Relative Abundance and Frequency of Landbirds from Point Counts

The following table presents relative abundance (number detected per station and mean number of birds per station) and frequency for species detected on point count surveys, Santa Barbara, Anacapa, Santa Rosa and San Miguel Islands, Channel Islands National Park, 2001-2010. The number of stations counted per year varied.

Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2001	Anacapa	Orange-crowned Warbler	3	1.50	0.50	2	100.00
2001	Anacapa	Savannah Sparrow	1	0.50	0.50	1	50.00
2001	Anacapa	White-crowned Sparrow	2	1.00	0.00	2	100.00
2001	Santa Barbara	Say's Phoebe	1	0.14	0.14	1	14.29
2001	Santa Barbara	Orange-crowned Warbler	6	0.86	0.46	3	42.86
2001	Santa Barbara	Western Meadowlark	15	2.14	0.34	7	100.00
2001	Santa Barbara	White-crowned Sparrow	1	0.14	0.14	1	14.29
2001	Santa Barbara	Horned Lark	13	1.86	0.88	6	85.71
2001	Santa Rosa	Mallard	7	0.19	0.14	2	5.41
2001	Santa Rosa	Red-tailed Hawk	5	0.14	0.08	3	8.11
2001	Santa Rosa	Peregrine Falcon	1	0.03	0.03	1	2.70
2001	Santa Rosa	American Kestrel	5	0.14	0.07	4	10.81
2001	Santa Rosa	California Quail	4	0.11	0.11	1	2.70
2001	Santa Rosa	Mourning Dove	1	0.03	0.03	1	2.70
2001	Santa Rosa	White-throated Swift	3	0.08	0.06	2	5.41
2001	Santa Rosa	Anna's Hummingbird	3	0.08	0.05	3	8.11
2001	Santa Rosa	Allen's Hummingbird	24	0.65	0.13	18	48.65
2001	Santa Rosa	Northern Flicker	1	0.03	0.03	1	2.70
2001	Santa Rosa	Black Phoebe	3	0.08	0.05	3	8.11
2001	Santa Rosa	Pacific-slope Flycatcher	20	0.54	0.11	16	43.24
2001	Santa Rosa	Bewick's Wren	58	1.57	0.14	33	89.19
2001	Santa Rosa	Orange-crowned Warbler	54	1.46	0.20	29	78.38
2001	Santa Rosa	Western Meadowlark	9	0.24	0.07	9	24.32
2001	Santa Rosa	House Finch	44	1.19	0.25	24	64.86
2001	Santa Rosa	Lesser Goldfinch	1	0.03	0.03	1	2.70
2001	Santa Rosa	American Goldfinch	1	0.03	0.03	1	2.70
2001	Santa Rosa	White-crowned Sparrow	2	0.05	0.05	1	2.70
2001	Santa Rosa	Song Sparrow	17	0.46	0.11	13	35.14
2001	Santa Rosa	Common Raven	19	0.51	0.18	12	32.43
2001	Santa Rosa	Spotted Towhee	30	0.81	0.13	23	62.16
2002	Santa Barbara	Northern Harrier	2	0.10	0.07	2	10.00
2002	Santa Barbara	Peregrine Falcon	1	0.05	0.05	1	5.00
2002	Santa Barbara	American Kestrel	3	0.15	0.08	3	15.00
2002	Santa Barbara	Say's Phoebe	2	0.10	0.07	2	10.00
2002	Santa Barbara	Rock Wren	1	0.05	0.05	1	5.00
2002	Santa Barbara	Orange-crowned Warbler	15	0.75	0.25	7	35.00
2002	Santa Barbara	Western Meadowlark	39	1.95	0.49	14	70.00
2002	Santa Barbara	White-crowned Sparrow	26	1.30	0.46	10	50.00
2002	Santa Barbara	Horned Lark	18	0.90	0.31	8	40.00
2002	San Miguel	Red-tailed Hawk	6	0.15	0.07	5	12.82

Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2002	San Miguel	Northern Harrier	3	0.08	0.04	3	7.69
2002	San Miguel	Peregrine Falcon	1	0.03	0.03	1	2.56
2002	San Miguel	American Kestrel	2	0.05	0.04	2	5.13
2002	San Miguel	Allen's Hummingbird	11	0.28	0.08	10	25.64
2002	San Miguel	Rock Wren	7	0.18	0.13	3	7.69
2002	San Miguel	Orange-crowned Warbler	68	1.74	0.25	31	79.49
2002	San Miguel	Western Meadowlark	73	1.87	0.25	31	79.49
2002	San Miguel	House Finch	7	0.18	0.08	5	12.82
2002	San Miguel	Song Sparrow	155	3.97	0.36	38	97.44
2002	San Miguel	Common Raven	48	1.23	0.26	25	64.10
2002	San Miguel	Horned Lark	25	0.64	0.19	13	33.33
2002	Santa Rosa	Mallard	8	0.07	0.03	5	4.67
2002	Santa Rosa	Red-tailed Hawk	6	0.06	0.02	6	5.61
2002	Santa Rosa	American Kestrel	8	0.07	0.03	8	7.48
2002	Santa Rosa	California Quail	13	0.12	0.03	13	12.15
2002	Santa Rosa	Mourning Dove	1	0.01	0.01	1	0.93
2002	Santa Rosa	Anna's Hummingbird	15	0.14	0.04	11	10.28
2002	Santa Rosa	Allen's Hummingbird	52	0.49	0.06	45	42.06
2002	Santa Rosa	Northern Flicker	2	0.02	0.01	2	1.87
2002	Santa Rosa	Black Phoebe	4	0.04	0.02	3	2.80
2002	Santa Rosa	Pacific-slope Flycatcher	58	0.54	0.06	49	45.79
2002	Santa Rosa	Barn Swallow	22	0.21	0.07	12	11.21
2002	Santa Rosa	Loggerhead Shrike	4	0.04	0.03	2	1.87
2002	Santa Rosa	Bewick's Wren	135	1.26	0.11	81	75.70
2002	Santa Rosa	Rock Wren	3	0.03	0.02	3	2.80
2002	Santa Rosa	Northern Mockingbird	2	0.02	0.01	2	1.87
2002	Santa Rosa	Orange-crowned Warbler	117	1.09	0.10	71	66.36
2002	Santa Rosa	Wilson's Warbler	4	0.04	0.02	3	2.80
2002	Santa Rosa	Western Meadowlark	123	1.15	0.12	71	66.36
2002	Santa Rosa	House Finch	164	1.53	0.16	72	67.29
2002	Santa Rosa	Lesser Goldfinch	66	0.62	0.12	33	30.84
2002	Santa Rosa	Chipping Sparrow	116	1.08	0.12	63	58.88
2002	Santa Rosa	Golden-crowned Sparrow	2	0.02	0.02	1	0.93
2002	Santa Rosa	Song Sparrow	103	0.96	0.12	59	55.14
2002	Santa Rosa	Common Raven	45	0.42	0.09	35	32.71
2002	Santa Rosa	Hermit Thrush	1	0.01	0.01	1	0.93
2002	Santa Rosa	Horned Lark	11	0.10	0.03	9	8.41
2002	Santa Rosa	Spotted Towhee	125	1.17	0.09	82	76.64
2003	Anacapa	Say's Phoebe	1	0.17	0.17	1	16.67
2003	Anacapa	Bewick's Wren	5	0.83	0.17	5	83.33
2003	Anacapa	Orange-crowned Warbler	5	0.83	0.31	4	66.67
2003	Anacapa	Western Meadowlark	1	0.17	0.17	1	16.67
2003	Santa Barbara	American Kestrel	4	0.15	0.07	4	14.81
2003	Santa Barbara	Say's Phoebe	4	0.15	0.07	4	14.81
2003	Santa Barbara	Orange-crowned Warbler	10	0.37	0.11	9	33.33
2003	Santa Barbara	Western Meadowlark	45	1.67	0.26	21	77.78
2003	Santa Barbara	House Finch	1	0.04	0.04	1	3.70
2003	Santa Barbara	White-crowned Sparrow	78	2.89	0.96	15	55.56
2003	Santa Barbara	Horned Lark	20	0.74	0.22	12	44.44

Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2003	San Miguel	Red-tailed Hawk	5	0.13	0.05	5	12.50
2003	San Miguel	Northern Harrier	9	0.23	0.08	8	20.00
2003	San Miguel	Anna's Hummingbird	5	0.13	0.06	4	10.00
2003	San Miguel	Allen's Hummingbird	3	0.08	0.06	2	5.00
2003	San Miguel	Black Phoebe	1	0.03	0.03	1	2.50
2003	San Miguel	Barn Swallow	2	0.05	0.03	2	5.00
2003	San Miguel	Rock Wren	2	0.05	0.03	2	5.00
2003	San Miguel	Orange-crowned Warbler	71	1.78	0.27	31	77.50
2003	San Miguel	Yellow Warbler	2	0.05	0.05	1	2.50
2003	San Miguel	Western Meadowlark	79	1.98	0.26	31	77.50
2003	San Miguel	House Finch	9	0.23	0.10	5	12.50
2003	San Miguel	Song Sparrow	111	2.78	0.28	37	92.50
2003	San Miguel	Common Raven	57	1.43	0.37	18	45.00
2003	San Miguel	Horned Lark	28	0.70	0.27	12	30.00
2003	Santa Rosa	Mallard	33	0.24	0.16	7	5.15
2003	Santa Rosa	Red-tailed Hawk	6	0.04	0.02	6	4.41
2003	Santa Rosa	Peregrine Falcon	2	0.01	0.01	2	1.47
2003	Santa Rosa	American Kestrel	9	0.07	0.02	8	5.88
2003	Santa Rosa	California Quail	8	0.06	0.02	8	5.88
2003	Santa Rosa	Mourning Dove	1	0.01	0.01	1	0.74
2003	Santa Rosa	White-throated Swift	1	0.01	0.01	1	0.74
2003	Santa Rosa	Anna's Hummingbird	10	0.07	0.02	9	6.62
2003	Santa Rosa	Allen's Hummingbird	70	0.51	0.05	65	47.79
2003	Santa Rosa	Northern Flicker	4	0.03	0.01	4	2.94
2003	Santa Rosa	Black Phoebe	5	0.04	0.02	4	2.94
2003	Santa Rosa	Pacific-slope Flycatcher	74	0.54	0.07	53	38.97
2003	Santa Rosa	Barn Swallow	18	0.13	0.05	10	7.35
2003	Santa Rosa	Bewick's Wren	227	1.67	0.11	112	82.35
2003	Santa Rosa	Rock Wren	9	0.07	0.03	7	5.15
2003	Santa Rosa	Northern Mockingbird	1	0.01	0.01	1	0.74
2003	Santa Rosa	Orange-crowned Warbler	173	1.27	0.09	104	76.47
2003	Santa Rosa	Yellow-rumped Warbler	2	0.01	0.01	1	0.74
2003	Santa Rosa	Hutton's Vireo	2	0.01	0.01	2	1.47
2003	Santa Rosa	Western Meadowlark	164	1.21	0.14	89	65.44
2003	Santa Rosa	House Finch	238	1.75	0.17	89	65.44
2003	Santa Rosa	Lesser Goldfinch	108	0.79	0.09	66	48.53
2003	Santa Rosa	American Goldfinch	1	0.01	0.01	1	0.74
2003	Santa Rosa	Chipping Sparrow	135	0.99	0.12	60	44.12
2003	Santa Rosa	Song Sparrow	137	1.01	0.10	77	56.62
2003	Santa Rosa	Common Raven	46	0.34	0.06	31	22.79
2003	Santa Rosa	Horned Lark	44	0.32	0.10	18	13.24
2003	Santa Rosa	Spotted Towhee	154	1.13	0.09	96	70.59
2004	Anacapa	Peregrine Falcon	2	0.29	0.29	1	14.29
2004	Anacapa	Bewick's Wren	14	2.00	0.31	7	100.00
2004	Anacapa	Orange-crowned Warbler	10	1.43	0.48	5	71.43
2004	Anacapa	Western Meadowlark	1	0.14	0.14	1	14.29
2004	Anacapa	House Finch	15	2.14	2.14	1	14.29
2004	Anacapa	White-crowned Sparrow	4	0.57	0.20	4	57.14
2004	Santa Barbara	Northern Harrier	2	0.10	0.07	2	10.00

Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2004	Santa Barbara	Peregrine Falcon	2	0.10	0.07	2	10.00
2004	Santa Barbara	American Kestrel	10	0.50	0.15	8	40.00
2004	Santa Barbara	Say's Phoebe	1	0.05	0.05	1	5.00
2004	Santa Barbara	Rock Wren	2	0.10	0.10	1	5.00
2004	Santa Barbara	Orange-crowned Warbler	12	0.60	0.24	7	35.00
2004	Santa Barbara	Western Meadowlark	175	8.75	3.94	20	100.00
2004	Santa Barbara	White-crowned Sparrow	30	1.50	0.63	9	45.00
2004	Santa Barbara	Horned Lark	44	2.20	0.56	12	60.00
2004	San Miguel	Red-tailed Hawk	5	0.13	0.06	4	10.00
2004	San Miguel	Northern Harrier	14	0.35	0.13	8	20.00
2004	San Miguel	Mourning Dove	1	0.03	0.03	1	2.50
2004	San Miguel	Allen's Hummingbird	8	0.20	0.08	6	15.00
2004	San Miguel	Barn Swallow	1	0.03	0.03	1	2.50
2004	San Miguel	Rock Wren	1	0.03	0.03	1	2.50
2004	San Miguel	Orange-crowned Warbler	95	2.38	0.29	30	75.00
2004	San Miguel	Western Meadowlark	55	1.38	0.21	31	77.50
2004	San Miguel	Song Sparrow	186	4.65	0.48	37	92.50
2004	San Miguel	Common Raven	76	1.90	0.89	25	62.50
2004	San Miguel	Horned Lark	44	1.10	0.47	11	27.50
2004	San Miguel	Spotted Towhee	1	0.03	0.03	1	2.50
2005	Anacapa	Bewick's Wren	9	1.13	0.35	6	75.00
2005	Anacapa	Orange-crowned Warbler	22	2.75	0.75	7	87.50
2005	Anacapa	Western Meadowlark	1	0.13	0.13	1	12.50
2005	Anacapa	Savannah Sparrow	1	0.13	0.13	1	12.50
2005	Anacapa	White-crowned Sparrow	15	1.88	0.77	5	62.50
2005	Anacapa	Golden-crowned Sparrow	3	0.38	0.18	3	37.50
2005	Santa Barbara	Northern Harrier	4	0.14	0.08	3	10.71
2005	Santa Barbara	Peregrine Falcon	1	0.04	0.04	1	3.57
2005	Santa Barbara	American Kestrel	6	0.21	0.09	5	17.86
2005	Santa Barbara	Barn Swallow	1	0.04	0.04	1	3.57
2005	Santa Barbara	Orange-crowned Warbler	11	0.39	0.12	9	32.14
2005	Santa Barbara	Western Meadowlark	45	1.61	0.25	22	78.57
2005	Santa Barbara	Savannah Sparrow	9	0.32	0.19	5	17.86
2005	Santa Barbara	White-crowned Sparrow	24	0.86	0.33	9	32.14
2005	Santa Barbara	Ruby-crowned Kinglet	7	0.25	0.25	1	3.57
2005	Santa Barbara	Horned Lark	57	2.04	0.59	13	46.43
2005	San Miguel	Northern Harrier	9	0.23	0.08	8	20.00
2005	San Miguel	Peregrine Falcon	1	0.03	0.03	1	2.50
2005	San Miguel	Allen's Hummingbird	7	0.18	0.08	5	12.50
2005	San Miguel	Cliff Swallow	1	0.03	0.03	1	2.50
2005	San Miguel	Orange-crowned Warbler	97	2.43	0.45	28	70.00
2005	San Miguel	Western Meadowlark	48	1.20	0.18	26	65.00
2005	San Miguel	White-crowned Sparrow	2	0.05	0.03	2	5.00
2005	San Miguel	Song Sparrow	164	4.10	0.45	36	90.00
2005	San Miguel	Common Raven	62	1.55	0.37	23	57.50
2005	San Miguel	Horned Lark	45	1.13	0.28	17	42.50
2006	Anacapa	Barn Swallow	1	0.20	0.20	1	20.00
2006	Anacapa	Bewick's Wren	10	2.00	0.63	5	100.00
2006	Anacapa	Orange-crowned Warbler	14	2.80	1.07	5	100.00

Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2006	Anacapa	Western Meadowlark	11	2.20	1.96	2	40.00
2006	Anacapa	House Finch	9	1.80	0.92	3	60.00
2006	Anacapa	White-crowned Sparrow	4	0.80	0.49	2	40.00
2006	Anacapa	Song Sparrow	2	0.40	0.40	1	20.00
2006	San Miguel	Red-tailed Hawk	1	0.03	0.03	1	2.50
2006	San Miguel	Northern Harrier	8	0.20	0.07	7	17.50
2006	San Miguel	Peregrine Falcon	1	0.03	0.03	1	2.50
2006	San Miguel	Anna's Hummingbird	1	0.03	0.03	1	2.50
2006	San Miguel	Allen's Hummingbird	6	0.15	0.08	4	10.00
2006	San Miguel	House Wren	1	0.03	0.03	1	2.50
2006	San Miguel	Orange-crowned Warbler	97	2.43	0.32	32	80.00
2006	San Miguel	Yellow-rumped Warbler	3	0.08	0.08	1	2.50
2006	San Miguel	Western Meadowlark	57	1.43	0.21	27	67.50
2006	San Miguel	Brewer's Blackbird	1	0.03	0.03	1	2.50
2006	San Miguel	House Finch	4	0.10	0.06	3	7.50
2006	San Miguel	White-crowned Sparrow	9	0.23	0.08	7	17.50
2006	San Miguel	Song Sparrow	180	4.50	0.42	39	97.50
2006	San Miguel	House Sparrow	1	0.03	0.03	1	2.50
2006	San Miguel	Common Raven	81	2.03	0.31	31	77.50
2006	San Miguel	Hermit Thrush	1	0.03	0.03	1	2.50
2006	San Miguel	Horned Lark	19	0.48	0.14	11	27.50
2006	Santa Rosa	Mallard	7	0.04	0.03	3	1.51
2006	Santa Rosa	Red-tailed Hawk	21	0.11	0.03	12	6.03
2006	Santa Rosa	Bald Eagle	1	0.01	0.01	1	0.50
2006	Santa Rosa	Northern Harrier	5	0.03	0.01	4	2.01
2006	Santa Rosa	Peregrine Falcon	5	0.03	0.01	4	2.01
2006	Santa Rosa	American Kestrel	5	0.03	0.01	4	2.01
2006	Santa Rosa	California Quail	33	0.17	0.03	28	14.07
2006	Santa Rosa	Mourning Dove	18	0.09	0.03	11	5.53
2006	Santa Rosa	White-throated Swift	1	0.01	0.01	1	0.50
2006	Santa Rosa	Anna's Hummingbird	23	0.12	0.02	22	11.06
2006	Santa Rosa	Rufous Hummingbird	9	0.05	0.02	8	4.02
2006	Santa Rosa	Allen's Hummingbird	61	0.31	0.06	35	17.59
2006	Santa Rosa	Acorn Woodpecker	1	0.01	0.01	1	0.50
2006	Santa Rosa	Black Phoebe	11	0.06	0.02	10	5.03
2006	Santa Rosa	Pacific-slope Flycatcher	198	0.99	0.07	118	59.30
2006	Santa Rosa	Barn Swallow	106	0.53	0.11	48	24.12
2006	Santa Rosa	Loggerhead Shrike	13	0.07	0.03	7	3.52
2006	Santa Rosa	Cedar Waxwing	25	0.13	0.13	1	0.50
2006	Santa Rosa	Bewick's Wren	252	1.27	0.09	133	66.83
2006	Santa Rosa	Rock Wren	17	0.09	0.02	15	7.54
2006	Santa Rosa	Northern Mockingbird	22	0.11	0.03	12	6.03
2006	Santa Rosa	Red-breasted Nuthatch	2	0.01	0.01	2	1.01
2006	Santa Rosa	Orange-crowned Warbler	359	1.80	0.10	158	79.40
2006	Santa Rosa	Townsend's Warbler	1	0.01	0.01	1	0.50
2006	Santa Rosa	Wilson's Warbler	1	0.01	0.01	1	0.50
2006	Santa Rosa	Hutton's Vireo	4	0.02	0.01	4	2.01
2006	Santa Rosa	Western Meadowlark	348	1.75	0.13	139	69.85
2006	Santa Rosa	Black-headed Grosbeak	1	0.01	0.01	1	0.50

Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2006	Santa Rosa	House Finch	425	2.14	0.19	139	69.85
2006	Santa Rosa	Lesser Goldfinch	249	1.25	0.11	112	56.28
2006	Santa Rosa	Grasshopper Sparrow	5	0.03	0.02	3	1.51
2006	Santa Rosa	Chipping Sparrow	306	1.54	0.11	140	70.35
2006	Santa Rosa	Golden-crowned Sparrow	1	0.01	0.01	1	0.50
2006	Santa Rosa	Song Sparrow	402	2.02	0.12	160	80.40
2006	Santa Rosa	Common Raven	107	0.54	0.06	80	40.20
2006	Santa Rosa	Horned Lark	47	0.24	0.05	27	13.57
2006	Santa Rosa	Spotted Towhee	426	2.14	0.11	169	84.92
2007	Santa Barbara	Northern Harrier	1	0.04	0.04	1	4.17
2007	Santa Barbara	Peregrine Falcon	2	0.08	0.06	2	8.33
2007	Santa Barbara	American Kestrel	3	0.13	0.09	2	8.33
2007	Santa Barbara	Short-eared Owl	6	0.25	0.25	1	4.17
2007	Santa Barbara	Western Kingbird	1	0.04	0.04	1	4.17
2007	Santa Barbara	Northern Mockingbird	1	0.04	0.04	1	4.17
2007	Santa Barbara	Orange-crowned Warbler	6	0.25	0.14	4	16.67
2007	Santa Barbara	Yellow-rumped Warbler	14	0.58	0.39	3	12.50
2007	Santa Barbara	Common Yellowthroat	1	0.04	0.04	1	4.17
2007	Santa Barbara	Western Meadowlark	29	1.21	0.23	15	62.50
2007	Santa Barbara	Savannah Sparrow	10	0.42	0.17	6	25.00
2007	Santa Barbara	White-crowned Sparrow	60	2.50	1.29	11	45.83
2007	Santa Barbara	Horned Lark	46	1.92	0.56	14	58.33
2007	San Miguel	Red-tailed Hawk	3	0.08	0.04	3	7.89
2007	San Miguel	Northern Harrier	4	0.11	0.05	4	10.53
2007	San Miguel	Peregrine Falcon	1	0.03	0.03	1	2.63
2007	San Miguel	Anna's Hummingbird	2	0.05	0.05	1	2.63
2007	San Miguel	Allen's Hummingbird	7	0.18	0.11	4	10.53
2007	San Miguel	Western Kingbird	1	0.03	0.03	1	2.63
2007	San Miguel	Pacific-slope Flycatcher	1	0.03	0.03	1	2.63
2007	San Miguel	Violet-green Swallow	1	0.03	0.03	1	2.63
2007	San Miguel	Barn Swallow	3	0.08	0.06	2	5.26
2007	San Miguel	Orange-crowned Warbler	108	2.84	0.32	33	86.84
2007	San Miguel	Yellow-rumped Warbler	1	0.03	0.03	1	2.63
2007	San Miguel	Townsend's Warbler	4	0.11	0.11	1	2.63
2007	San Miguel	Wilson's Warbler	8	0.21	0.12	4	10.53
2007	San Miguel	Western Meadowlark	37	0.97	0.17	21	55.26
2007	San Miguel	Brown-headed Cowbird	1	0.03	0.03	1	2.63
2007	San Miguel	Black-headed Grosbeak	5	0.13	0.13	1	2.63
2007	San Miguel	House Finch	4	0.11	0.05	4	10.53
2007	San Miguel	Lesser Goldfinch	1	0.03	0.03	1	2.63
2007	San Miguel	Lark Bunting	1	0.03	0.03	1	2.63
2007	San Miguel	Savannah Sparrow	1	0.03	0.03	1	2.63
2007	San Miguel	Song Sparrow	128	3.37	0.40	35	92.11
2007	San Miguel	Common Raven	83	2.18	0.41	25	65.79
2007	San Miguel	Ruby-crowned Kinglet	1	0.03	0.03	1	2.63
2007	San Miguel	Horned Lark	22	0.58	0.19	10	26.32
2008	Santa Barbara	Peregrine Falcon	1	0.05	0.05	1	4.55
2008	Santa Barbara	Rock Wren	2	0.09	0.09	1	4.55
2008	Santa Barbara	Orange-crowned Warbler	18	0.82	0.43	5	22.73

Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2008	Santa Barbara	Yellow-rumped Warbler	1	0.05	0.05	1	4.55
2008	Santa Barbara	Western Meadowlark	22	1.00	0.29	10	45.45
2008	Santa Barbara	Savannah Sparrow	44	2.00	1.35	10	45.45
2008	Santa Barbara	White-crowned Sparrow	30	1.36	0.59	9	40.91
2008	Santa Barbara	Horned Lark	143	6.50	1.03	21	95.45
2008	San Miguel	Red-tailed Hawk	1	0.03	0.03	1	2.50
2008	San Miguel	Northern Harrier	2	0.05	0.03	2	5.00
2008	San Miguel	Mountain Plover	1	0.03	0.03	1	2.50
2008	San Miguel	Anna's Hummingbird	2	0.05	0.03	2	5.00
2008	San Miguel	Allen's Hummingbird	5	0.13	0.08	3	7.50
2008	San Miguel	Pacific-slope Flycatcher	2	0.05	0.03	2	5.00
2008	San Miguel	Barn Swallow	6	0.15	0.08	4	10.00
2008	San Miguel	Rock Wren	1	0.03	0.03	1	2.50
2008	San Miguel	Northern Mockingbird	1	0.03	0.03	1	2.50
2008	San Miguel	Orange-crowned Warbler	150	3.75	0.44	35	87.50
2008	San Miguel	Townsend's Warbler	6	0.15	0.13	2	5.00
2008	San Miguel	Wilson's Warbler	1	0.03	0.03	1	2.50
2008	San Miguel	Western Meadowlark	40	1.00	0.16	23	57.50
2008	San Miguel	House Finch	12	0.30	0.15	4	10.00
2008	San Miguel	Rufous-crowned Sparrow	2	0.05	0.03	2	5.00
2008	San Miguel	Chipping Sparrow	1	0.03	0.03	1	2.50
2008	San Miguel	Song Sparrow	194	4.85	0.54	38	95.00
2008	San Miguel	Common Raven	107	2.68	0.42	32	80.00
2008	San Miguel	Horned Lark	76	1.90	0.48	19	47.50
2008	Santa Rosa	Red-tailed Hawk	9	0.06	0.02	7	4.55
2008	Santa Rosa	Bald Eagle	1	0.01	0.01	1	0.65
2008	Santa Rosa	Northern Harrier	5	0.03	0.02	4	2.60
2008	Santa Rosa	Peregrine Falcon	2	0.01	0.01	2	1.30
2008	Santa Rosa	California Quail	7	0.05	0.02	5	3.25
2008	Santa Rosa	Mourning Dove	2	0.01	0.01	2	1.30
2008	Santa Rosa	Eurasian Collared Dove	1	0.01	0.01	1	0.65
2008	Santa Rosa	White-throated Swift	4	0.03	0.03	1	0.65
2008	Santa Rosa	Anna's Hummingbird	5	0.03	0.02	3	1.95
2008	Santa Rosa	Allen's Hummingbird	57	0.37	0.05	46	29.87
2008	Santa Rosa	Northern Flicker	1	0.01	0.01	1	0.65
2008	Santa Rosa	Acorn Woodpecker	2	0.01	0.01	2	1.30
2008	Santa Rosa	Black Phoebe	4	0.03	0.01	4	2.60
2008	Santa Rosa	Say's Phoebe	1	0.01	0.01	1	0.65
2008	Santa Rosa	Pacific-slope Flycatcher	98	0.64	0.07	60	38.96
2008	Santa Rosa	Barn Swallow	20	0.13	0.07	7	4.55
2008	Santa Rosa	Loggerhead Shrike	5	0.03	0.02	3	1.95
2008	Santa Rosa	Bewick's Wren	134	0.87	0.08	83	53.90
2008	Santa Rosa	Rock Wren	10	0.06	0.02	9	5.84
2008	Santa Rosa	Northern Mockingbird	11	0.07	0.02	9	5.84
2008	Santa Rosa	Orange-crowned Warbler	128	0.83	0.13	55	35.71
2008	Santa Rosa	Western Meadowlark	131	0.85	0.10	67	43.51
2008	Santa Rosa	House Finch	210	1.36	0.15	76	49.35
2008	Santa Rosa	Lesser Goldfinch	100	0.65	0.13	39	25.32
2008	Santa Rosa	Grasshopper Sparrow	2	0.01	0.01	1	0.65

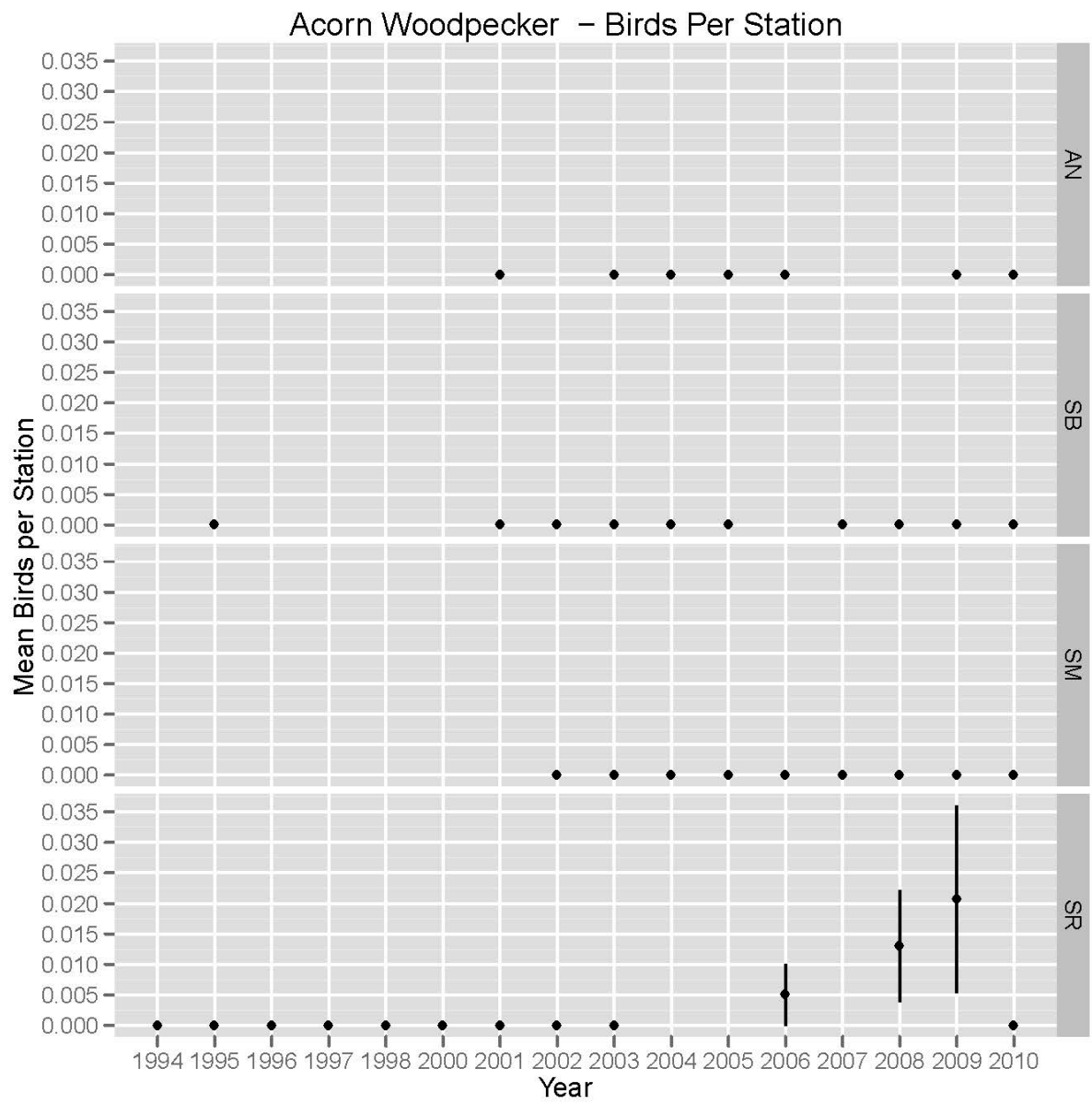
Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2008	Santa Rosa	Dark-eyed Junco	1	0.01	0.01	1	0.65
2008	Santa Rosa	Chipping Sparrow	125	0.81	0.09	71	46.10
2008	Santa Rosa	Song Sparrow	129	0.84	0.12	59	38.31
2008	Santa Rosa	Common Raven	94	0.61	0.11	41	26.62
2008	Santa Rosa	Horned Lark	21	0.14	0.05	9	5.84
2008	Santa Rosa	Spotted Towhee	193	1.25	0.09	109	70.78
2009	Anacapa	Say's Phoebe	1	0.25	0.25	1	25.00
2009	Anacapa	Bewick's Wren	3	0.75	0.48	2	50.00
2009	Anacapa	Orange-crowned Warbler	9	2.25	1.11	3	75.00
2009	Anacapa	Western Meadowlark	1	0.25	0.25	1	25.00
2009	Anacapa	Song Sparrow	2	0.50	0.29	2	50.00
2009	Santa Barbara	Northern Harrier	2	0.08	0.08	1	4.17
2009	Santa Barbara	Say's Phoebe	1	0.04	0.04	1	4.17
2009	Santa Barbara	Western Meadowlark	32	1.33	0.31	14	58.33
2009	Santa Barbara	Savannah Sparrow	4	0.17	0.17	1	4.17
2009	Santa Barbara	Horned Lark	103	4.29	0.71	17	70.83
2009	San Miguel	Allen's Hummingbird	9	0.23	0.15	4	10.00
2009	San Miguel	Black Phoebe	1	0.03	0.03	1	2.50
2009	San Miguel	Say's Phoebe	1	0.03	0.03	1	2.50
2009	San Miguel	Barn Swallow	1	0.03	0.03	1	2.50
2009	San Miguel	Orange-crowned Warbler	84	2.10	0.30	28	70.00
2009	San Miguel	Western Meadowlark	88	2.20	0.31	28	70.00
2009	San Miguel	House Finch	30	0.75	0.20	14	35.00
2009	San Miguel	American Goldfinch	2	0.05	0.05	1	2.50
2009	San Miguel	Chipping Sparrow	1	0.03	0.03	1	2.50
2009	San Miguel	White-crowned Sparrow	4	0.10	0.06	3	7.50
2009	San Miguel	Song Sparrow	198	4.95	0.39	38	95.00
2009	San Miguel	House Sparrow	1	0.03	0.03	1	2.50
2009	San Miguel	Common Raven	67	1.68	0.23	31	77.50
2009	San Miguel	Horned Lark	49	1.23	0.26	21	52.50
2009	Santa Rosa	Mallard	1	0.01	0.01	1	0.69
2009	Santa Rosa	Red-tailed Hawk	7	0.05	0.02	7	4.83
2009	Santa Rosa	Peregrine Falcon	1	0.01	0.01	1	0.69
2009	Santa Rosa	California Quail	6	0.04	0.02	4	2.76
2009	Santa Rosa	Virginia Rail	1	0.01	0.01	1	0.69
2009	Santa Rosa	Mourning Dove	8	0.06	0.02	7	4.83
2009	Santa Rosa	Allen's Hummingbird	42	0.29	0.05	35	24.14
2009	Santa Rosa	Acorn Woodpecker	3	0.02	0.02	2	1.38
2009	Santa Rosa	Black Phoebe	2	0.01	0.01	2	1.38
2009	Santa Rosa	Say's Phoebe	2	0.01	0.01	2	1.38
2009	Santa Rosa	Pacific-slope Flycatcher	108	0.74	0.08	65	44.83
2009	Santa Rosa	Barn Swallow	21	0.14	0.06	10	6.90
2009	Santa Rosa	Loggerhead Shrike	4	0.03	0.01	4	2.76
2009	Santa Rosa	Bewick's Wren	193	1.33	0.13	90	62.07
2009	Santa Rosa	Rock Wren	16	0.11	0.03	12	8.28
2009	Santa Rosa	Northern Mockingbird	10	0.07	0.03	6	4.14
2009	Santa Rosa	Bushtit	2	0.01	0.01	1	0.69
2009	Santa Rosa	Orange-crowned Warbler	237	1.63	0.14	95	65.52
2009	Santa Rosa	Yellow-rumped Warbler	1	0.01	0.01	1	0.69

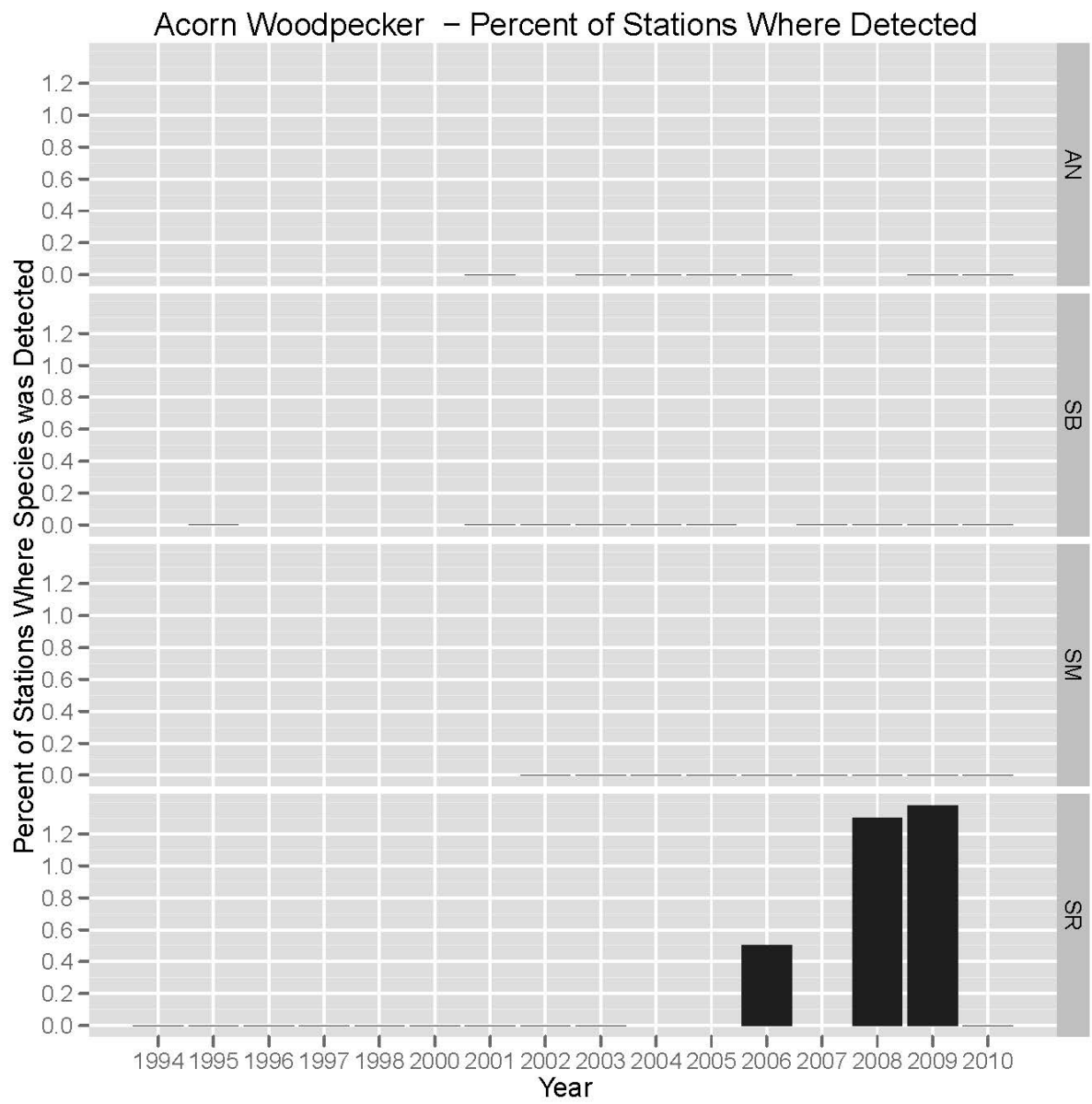
Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2009	Santa Rosa	Hutton's Vireo	7	0.05	0.04	3	2.07
2009	Santa Rosa	Western Meadowlark	216	1.49	0.13	95	65.52
2009	Santa Rosa	Red-winged Blackbird	5	0.03	0.03	1	0.69
2009	Santa Rosa	House Finch	142	0.98	0.13	56	38.62
2009	Santa Rosa	Lesser Goldfinch	66	0.46	0.08	32	22.07
2009	Santa Rosa	Grasshopper Sparrow	5	0.03	0.02	4	2.76
2009	Santa Rosa	Chipping Sparrow	205	1.41	0.13	94	64.83
2009	Santa Rosa	White-crowned Sparrow	2	0.01	0.01	2	1.38
2009	Santa Rosa	Golden-crowned Sparrow	3	0.02	0.02	2	1.38
2009	Santa Rosa	Song Sparrow	283	1.95	0.17	99	68.28
2009	Santa Rosa	Common Raven	123	0.85	0.11	63	43.45
2009	Santa Rosa	Blue-gray Gnatcatcher	2	0.01	0.01	2	1.38
2009	Santa Rosa	Horned Lark	33	0.23	0.06	19	13.10
2009	Santa Rosa	Spotted Towhee	238	1.64	0.10	121	83.45
2010	Anacapa	Peregrine Falcon	1	0.14	0.14	1	14.29
2010	Anacapa	Black Phoebe	2	0.29	0.29	1	14.29
2010	Anacapa	Bewick's Wren	1	0.14	0.14	1	14.29
2010	Anacapa	Orange-crowned Warbler	15	2.14	0.67	5	71.43
2010	Anacapa	Western Meadowlark	10	1.43	0.48	5	71.43
2010	Anacapa	White-crowned Sparrow	10	1.43	0.72	3	42.86
2010	Anacapa	Song Sparrow	6	0.86	0.34	4	57.14
2010	Santa Barbara	Northern Harrier	4	0.13	0.06	4	12.90
2010	Santa Barbara	Peregrine Falcon	4	0.13	0.08	3	9.68
2010	Santa Barbara	American Kestrel	2	0.06	0.04	2	6.45
2010	Santa Barbara	Say's Phoebe	3	0.10	0.05	3	9.68
2010	Santa Barbara	Rock Wren	2	0.06	0.04	2	6.45
2010	Santa Barbara	Orange-crowned Warbler	38	1.23	0.52	8	25.81
2010	Santa Barbara	Western Meadowlark	65	2.10	0.38	20	64.52
2010	Santa Barbara	Grasshopper Sparrow	5	0.16	0.13	2	6.45
2010	Santa Barbara	White-crowned Sparrow	28	0.90	0.37	6	19.35
2010	Santa Barbara	Horned Lark	165	5.32	0.65	30	96.77
2010	San Miguel	Northern Harrier	2	0.05	0.04	2	5.13
2010	San Miguel	Peregrine Falcon	1	0.03	0.03	1	2.56
2010	San Miguel	Anna's Hummingbird	1	0.03	0.03	1	2.56
2010	San Miguel	Allen's Hummingbird	8	0.21	0.13	4	10.26
2010	San Miguel	Say's Phoebe	1	0.03	0.03	1	2.56
2010	San Miguel	Rock Wren	6	0.15	0.08	4	10.26
2010	San Miguel	Orange-crowned Warbler	102	2.62	0.72	25	64.10
2010	San Miguel	Yellow Warbler	1	0.03	0.03	1	2.56
2010	San Miguel	Western Meadowlark	76	1.95	0.35	24	61.54
2010	San Miguel	House Finch	15	0.38	0.17	6	15.38
2010	San Miguel	White-crowned Sparrow	10	0.26	0.10	7	17.95
2010	San Miguel	Song Sparrow	171	4.38	0.34	37	94.87
2010	San Miguel	Common Raven	81	2.08	0.32	31	79.49
2010	San Miguel	Horned Lark	61	1.56	0.37	19	48.72
2010	Santa Rosa	Mallard	5	0.05	0.04	2	2.06
2010	Santa Rosa	Turkey Vulture	1	0.01	0.01	1	1.03
2010	Santa Rosa	Red-tailed Hawk	8	0.08	0.03	7	7.22
2010	Santa Rosa	Bald Eagle	3	0.03	0.02	3	3.09

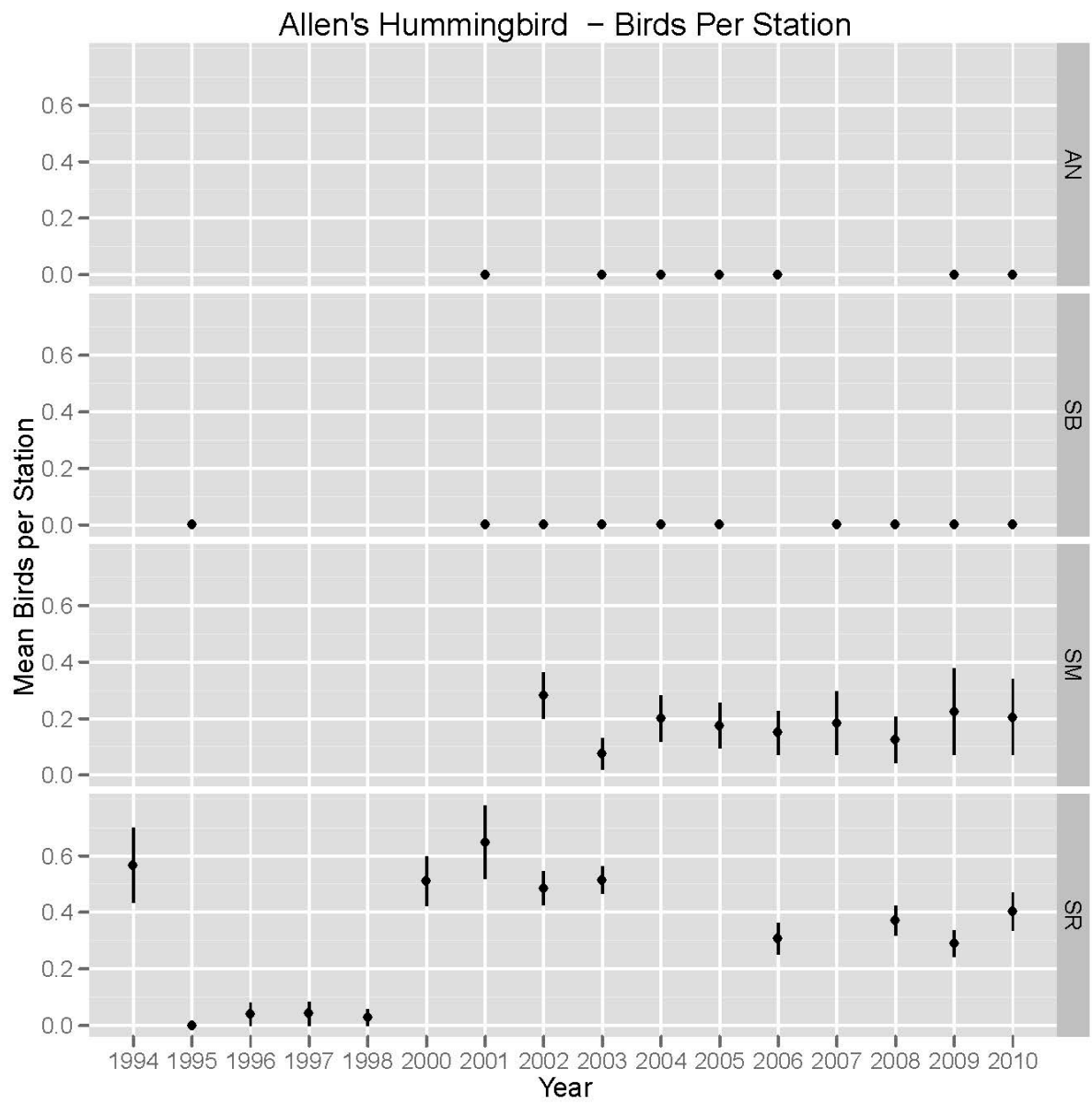
Year	Island	Common Name	# Detected	Mean	SE	# Stations where species was detected	% Stations With species
2010	Santa Rosa	Northern Harrier	1	0.01	0.01	1	1.03
2010	Santa Rosa	Peregrine Falcon	1	0.01	0.01	1	1.03
2010	Santa Rosa	California Quail	12	0.12	0.04	11	11.34
2010	Santa Rosa	Mourning Dove	2	0.02	0.01	2	2.06
2010	Santa Rosa	White-throated Swift	10	0.10	0.06	3	3.09
2010	Santa Rosa	Anna's Hummingbird	1	0.01	0.01	1	1.03
2010	Santa Rosa	Allen's Hummingbird	39	0.40	0.07	31	31.96
2010	Santa Rosa	Black Phoebe	5	0.05	0.02	5	5.15
2010	Santa Rosa	Pacific-slope Flycatcher	53	0.55	0.09	36	37.11
2010	Santa Rosa	Barn Swallow	15	0.15	0.07	7	7.22
2010	Santa Rosa	Loggerhead Shrike	10	0.10	0.04	7	7.22
2010	Santa Rosa	Cedar Waxwing	1	0.01	0.01	1	1.03
2010	Santa Rosa	Bewick's Wren	70	0.72	0.08	52	53.61
2010	Santa Rosa	Rock Wren	5	0.05	0.02	5	5.15
2010	Santa Rosa	Northern Mockingbird	15	0.15	0.05	11	11.34
2010	Santa Rosa	Bushtit	1	0.01	0.01	1	1.03
2010	Santa Rosa	Orange-crowned Warbler	94	0.97	0.10	60	61.86
2010	Santa Rosa	Yellow Warbler	2	0.02	0.02	1	1.03
2010	Santa Rosa	Common Yellowthroat	7	0.07	0.04	3	3.09
2010	Santa Rosa	Western Meadowlark	180	1.86	0.14	80	82.47
2010	Santa Rosa	House Finch	53	0.55	0.11	29	29.90
2010	Santa Rosa	Lesser Goldfinch	7	0.07	0.03	5	5.15
2010	Santa Rosa	Chipping Sparrow	83	0.86	0.11	51	52.58
2010	Santa Rosa	White-crowned Sparrow	2	0.02	0.02	1	1.03
2010	Santa Rosa	Song Sparrow	151	1.56	0.15	66	68.04
2010	Santa Rosa	Common Raven	94	0.97	0.26	43	44.33
2010	Santa Rosa	Ruby-crowned Kinglet	4	0.04	0.03	3	3.09
2010	Santa Rosa	Horned Lark	28	0.29	0.09	15	15.46
2010	Santa Rosa	Spotted Towhee	180	1.86	0.14	82	84.54

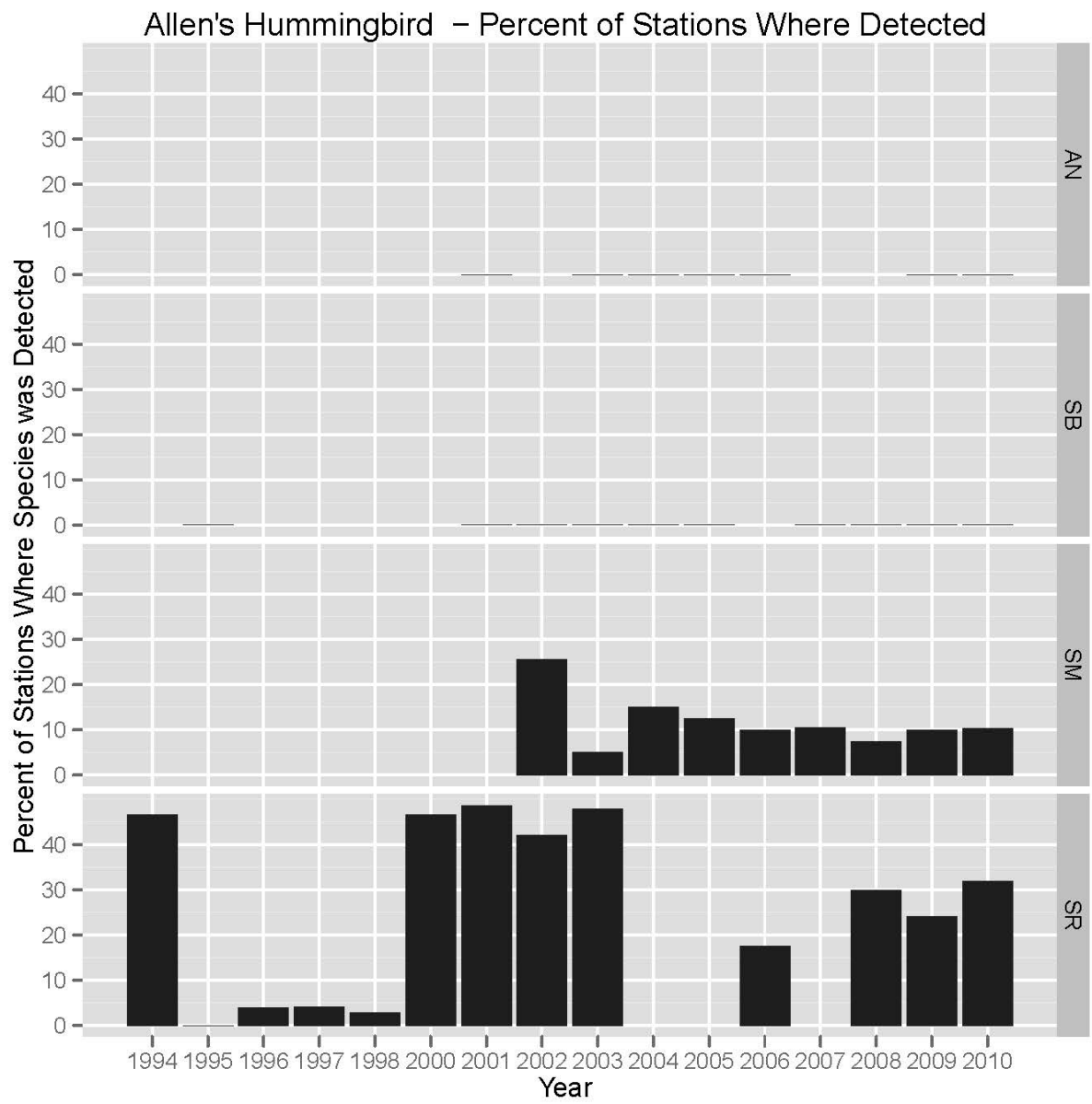
Appendix B: Relative Abundance of Landbird Species by Island

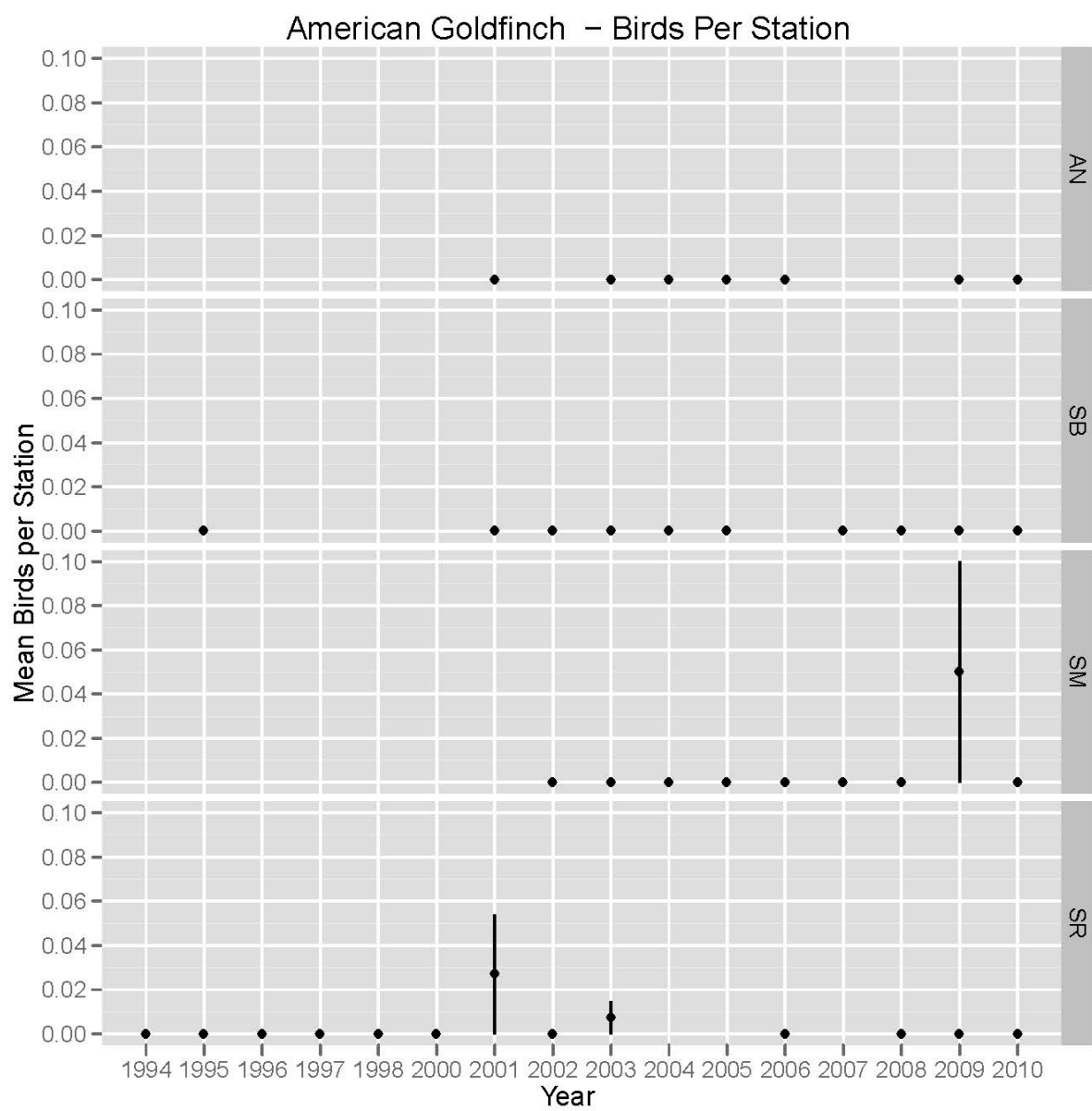
The following presents relative abundance (average number of birds per station) and approximate distribution (percent of stations where species was detected) from point count sampling for bird species observed on Santa Barbara, Anacapa, Santa Rosa and San Miguel, , Islands, Channel Islands National Park, 2001-2010.

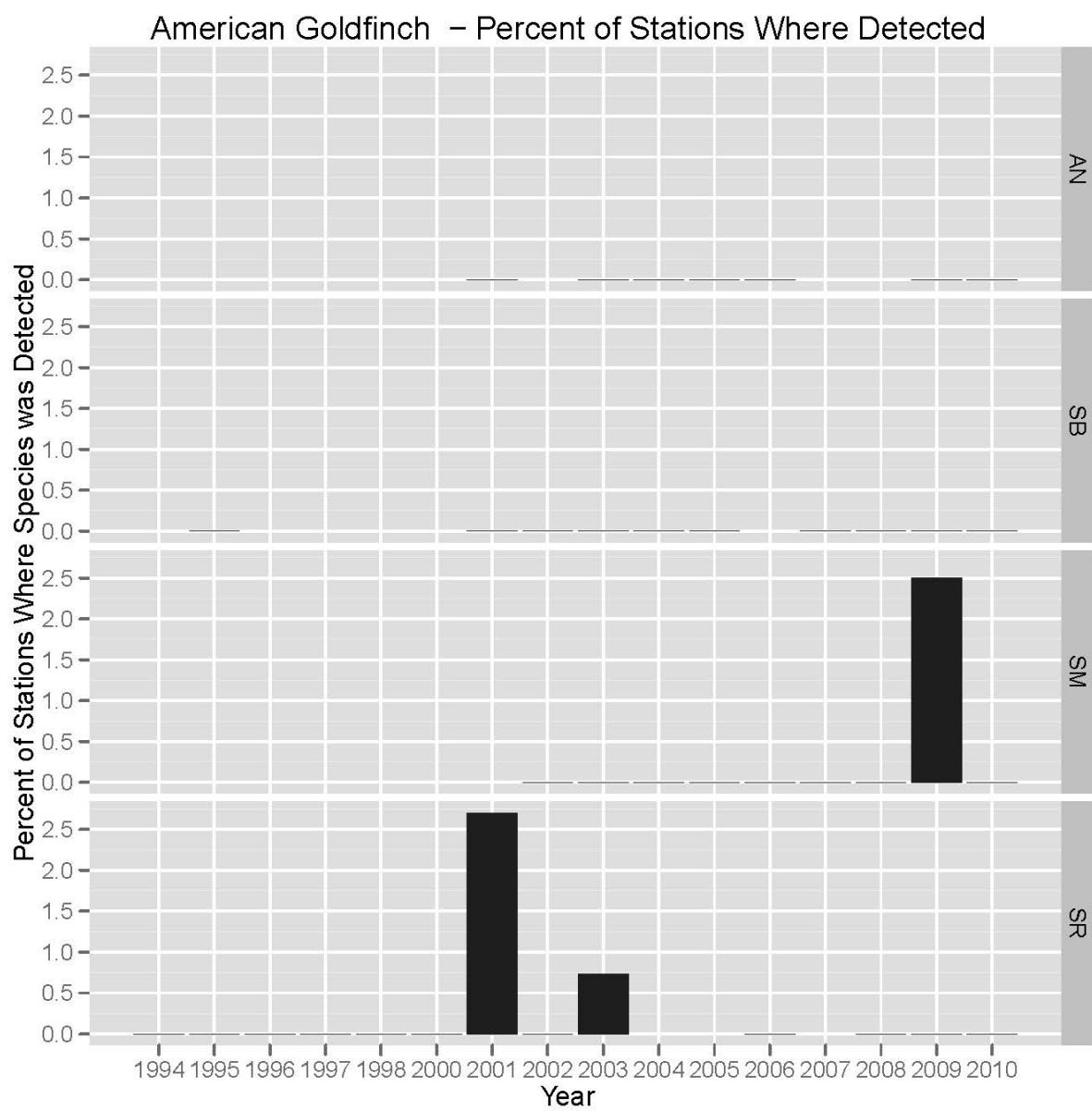


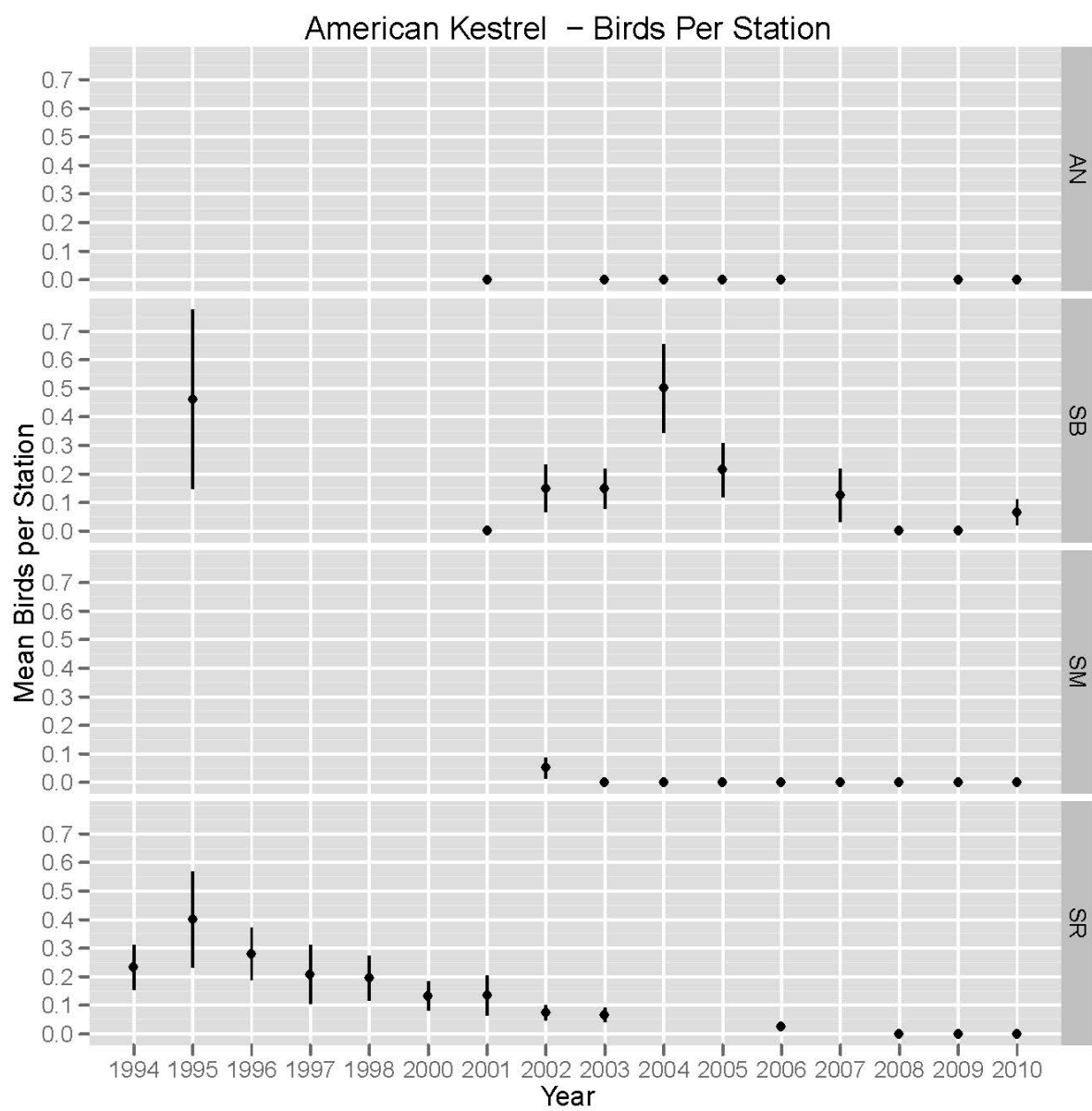


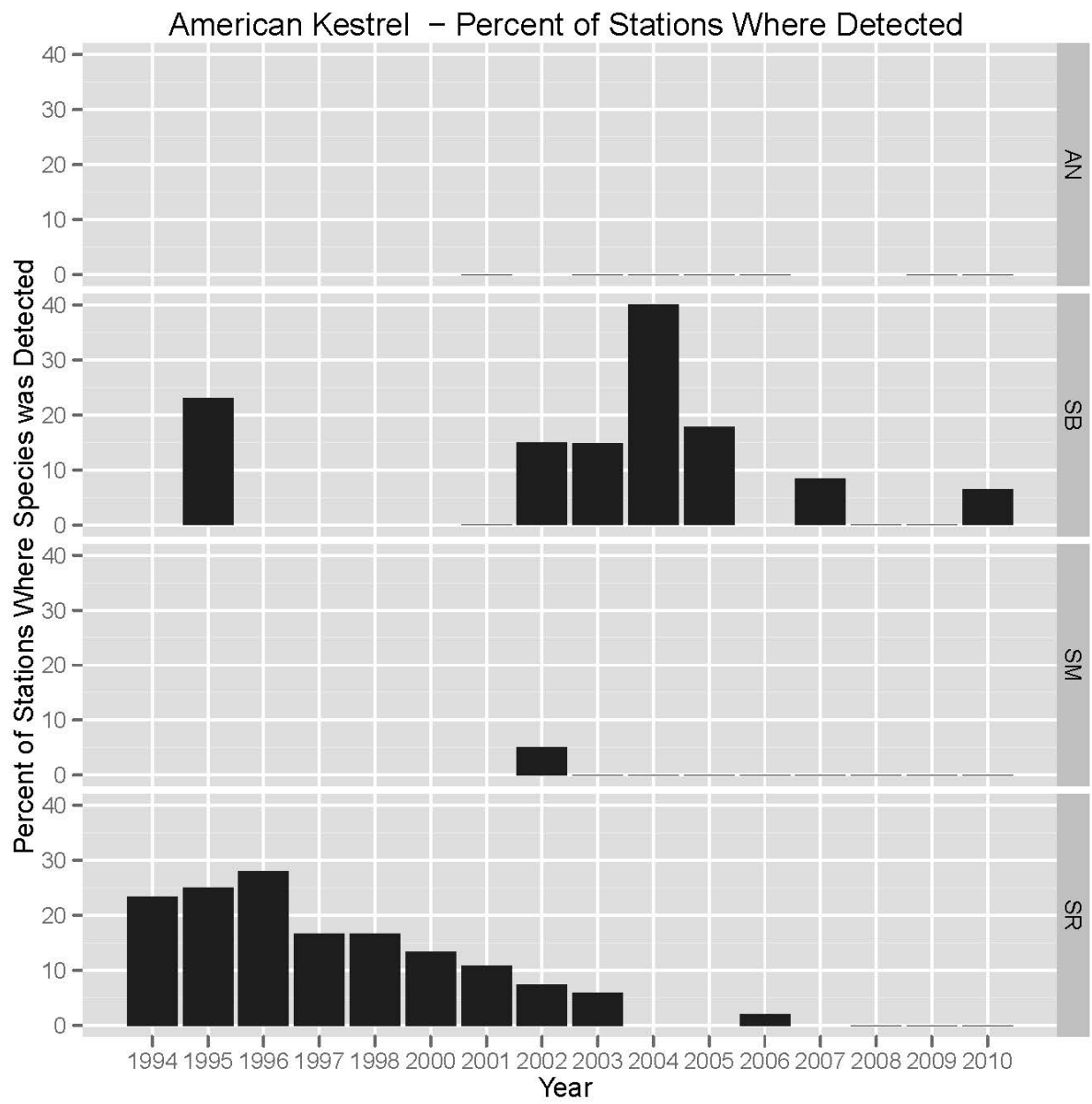


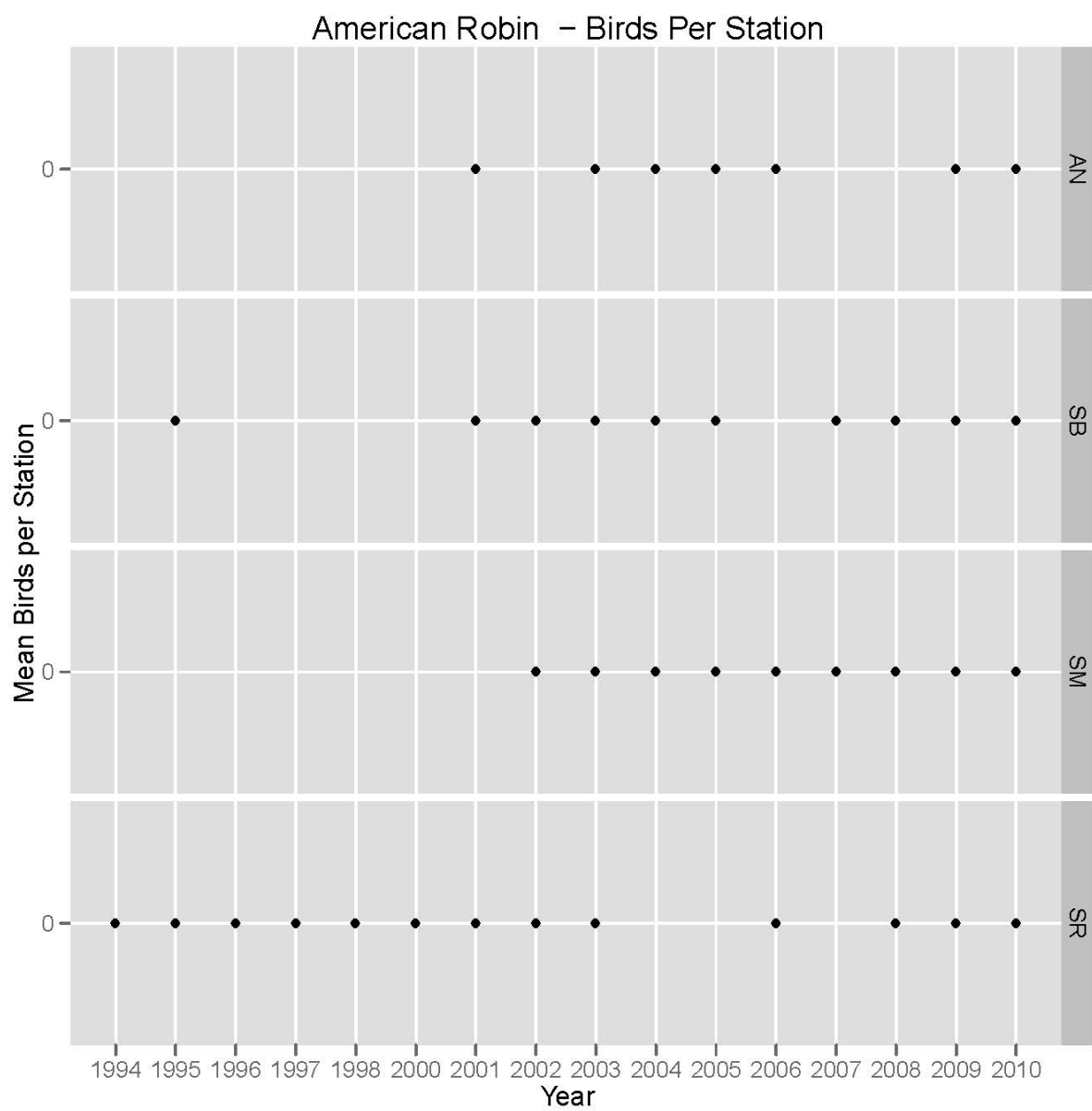


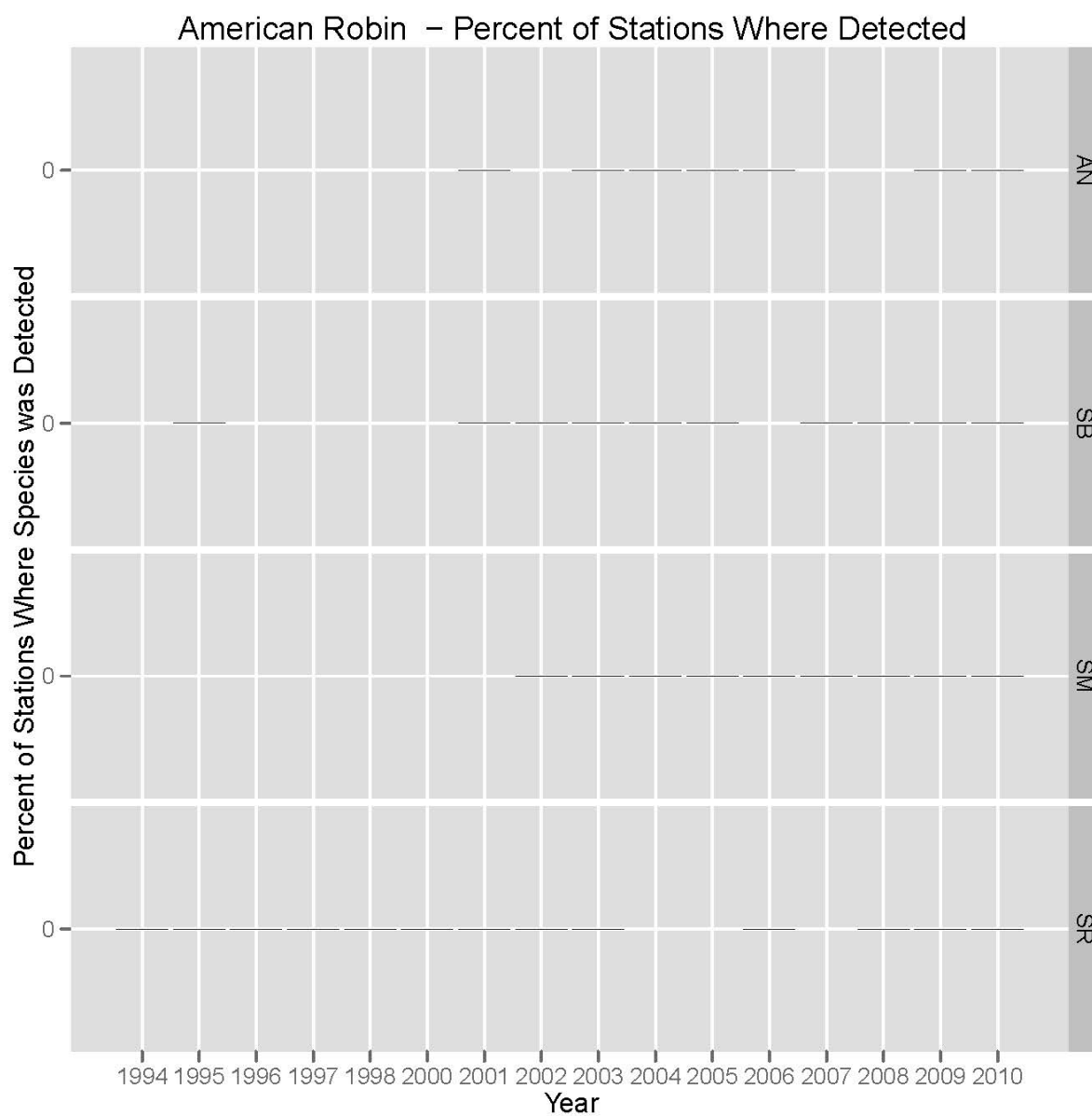


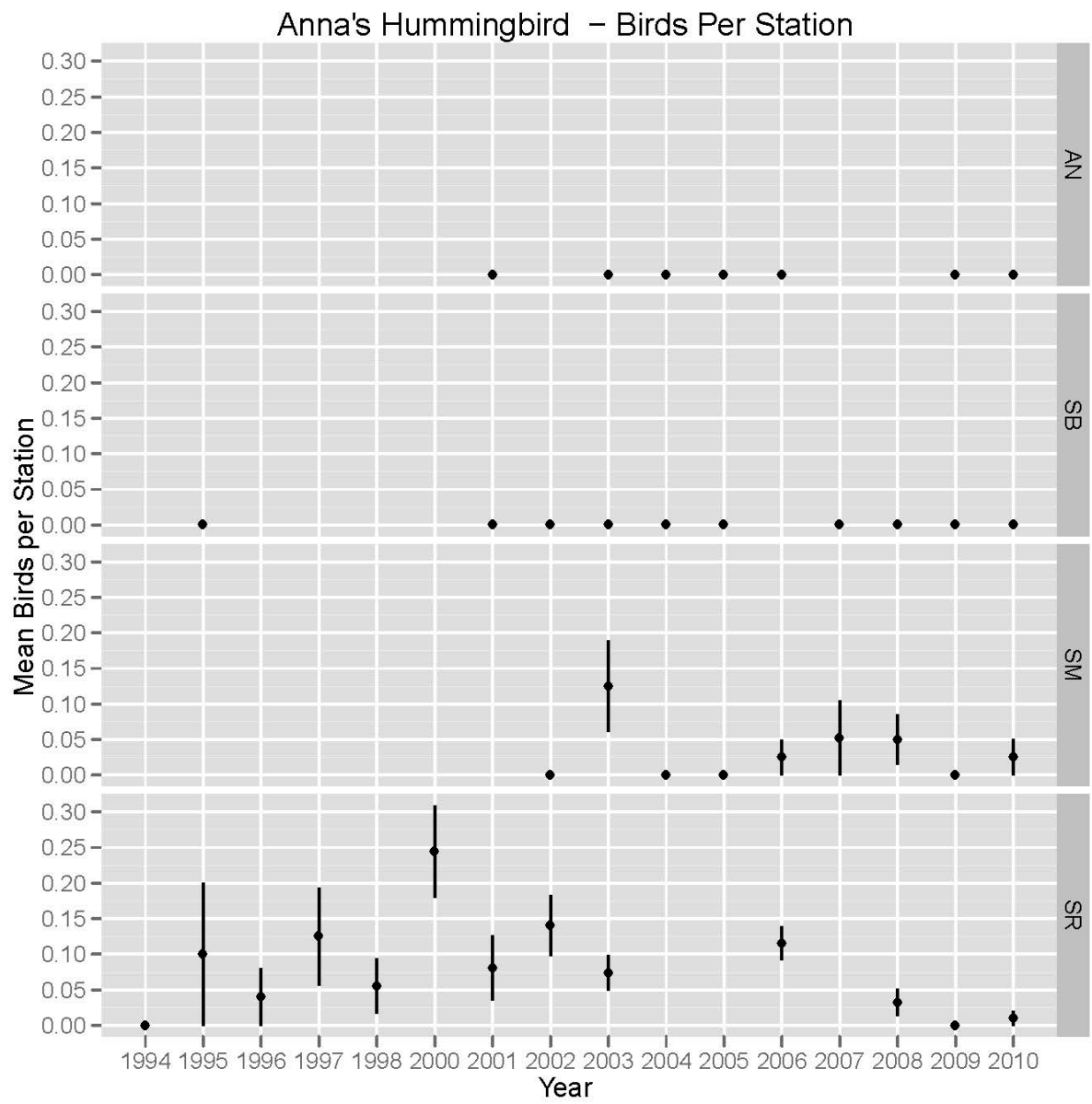


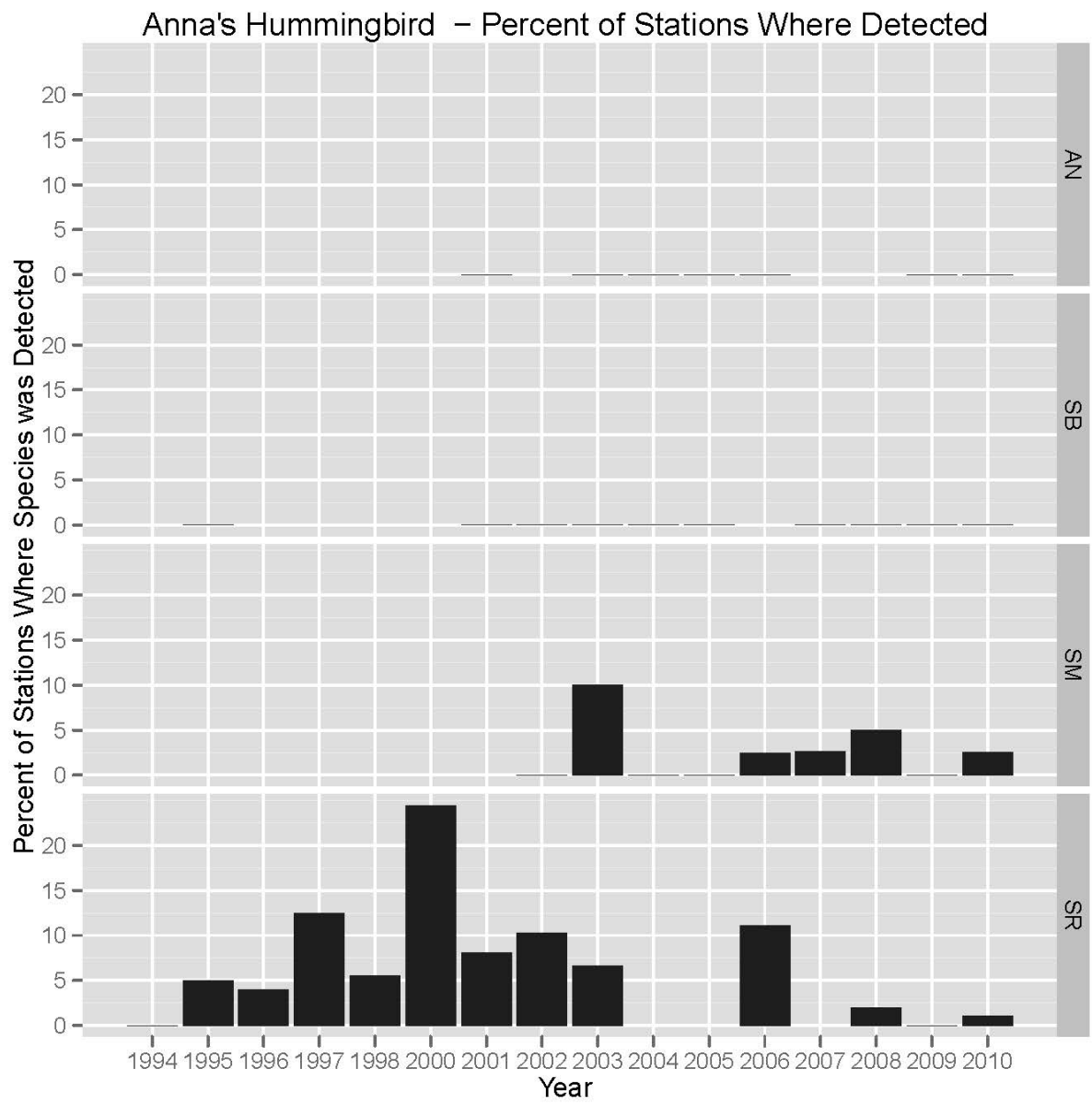


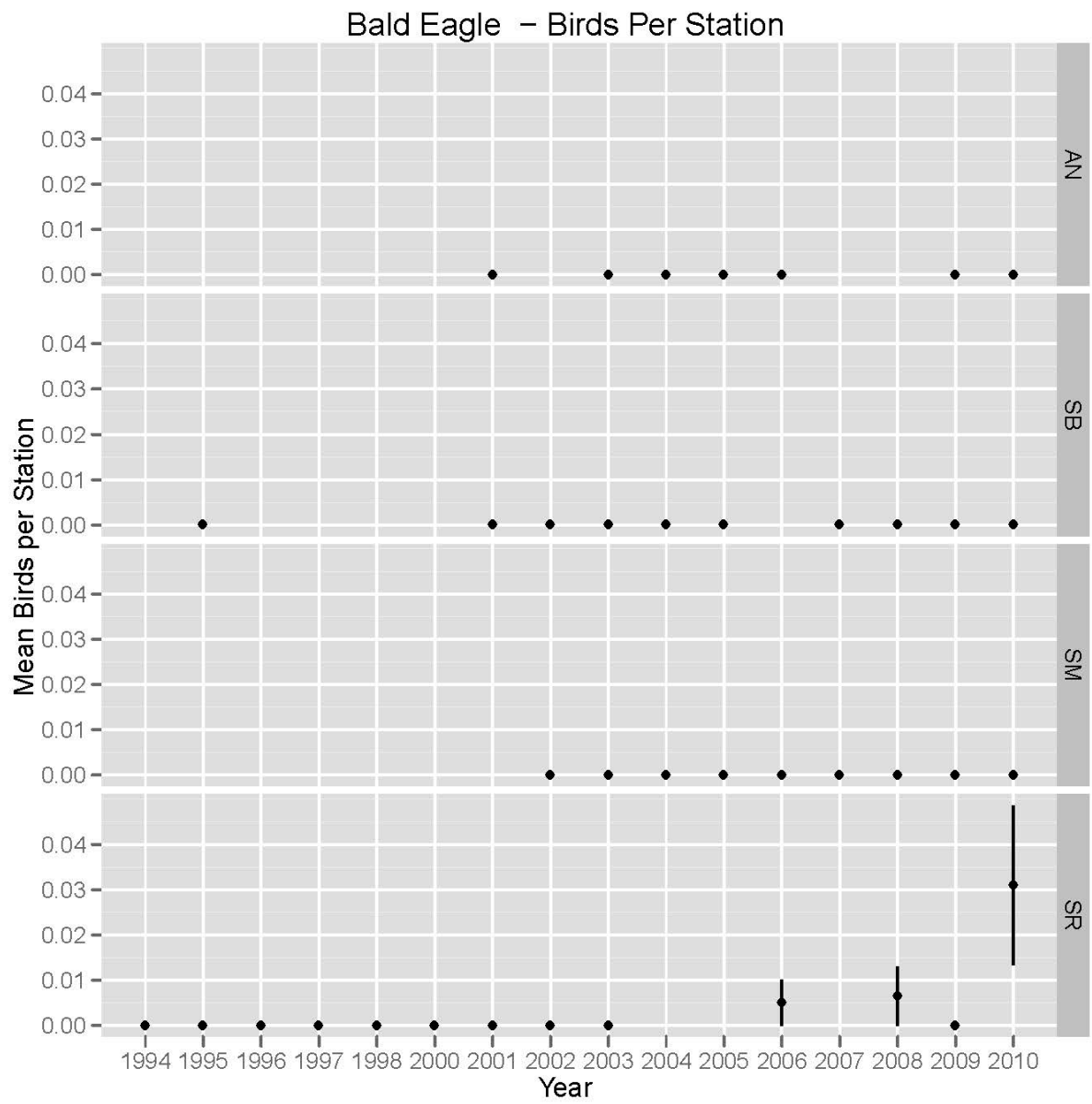


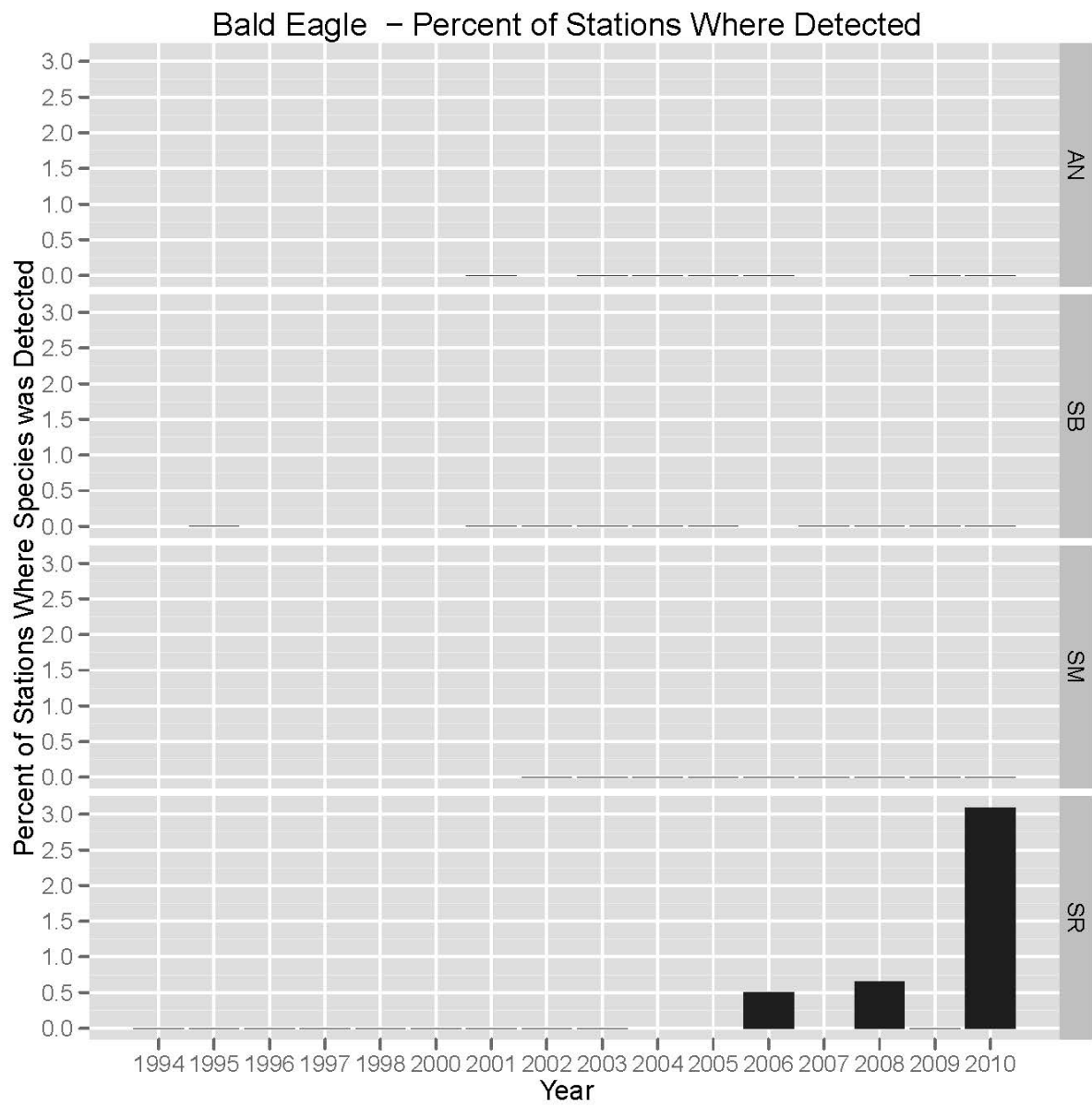


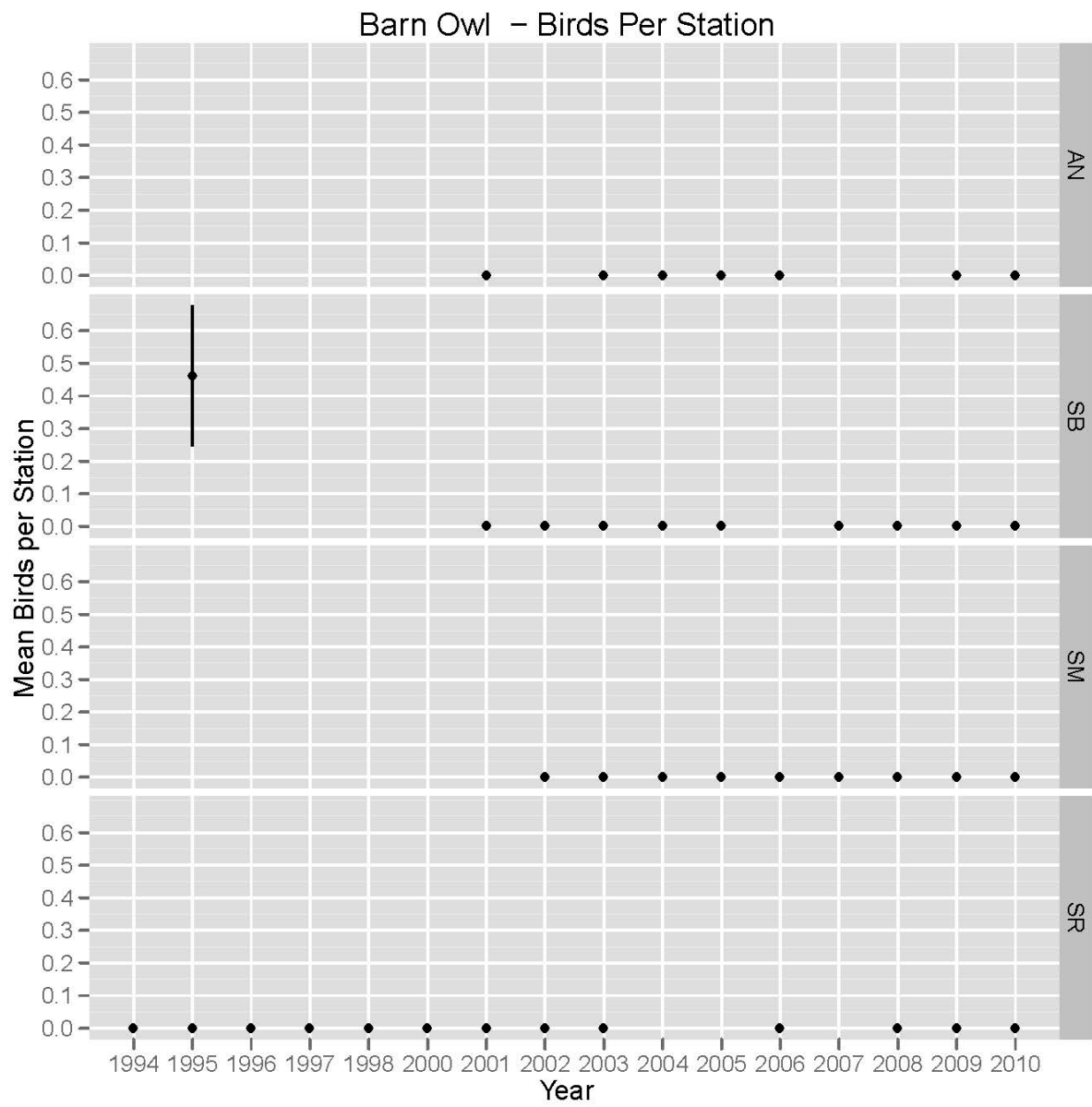


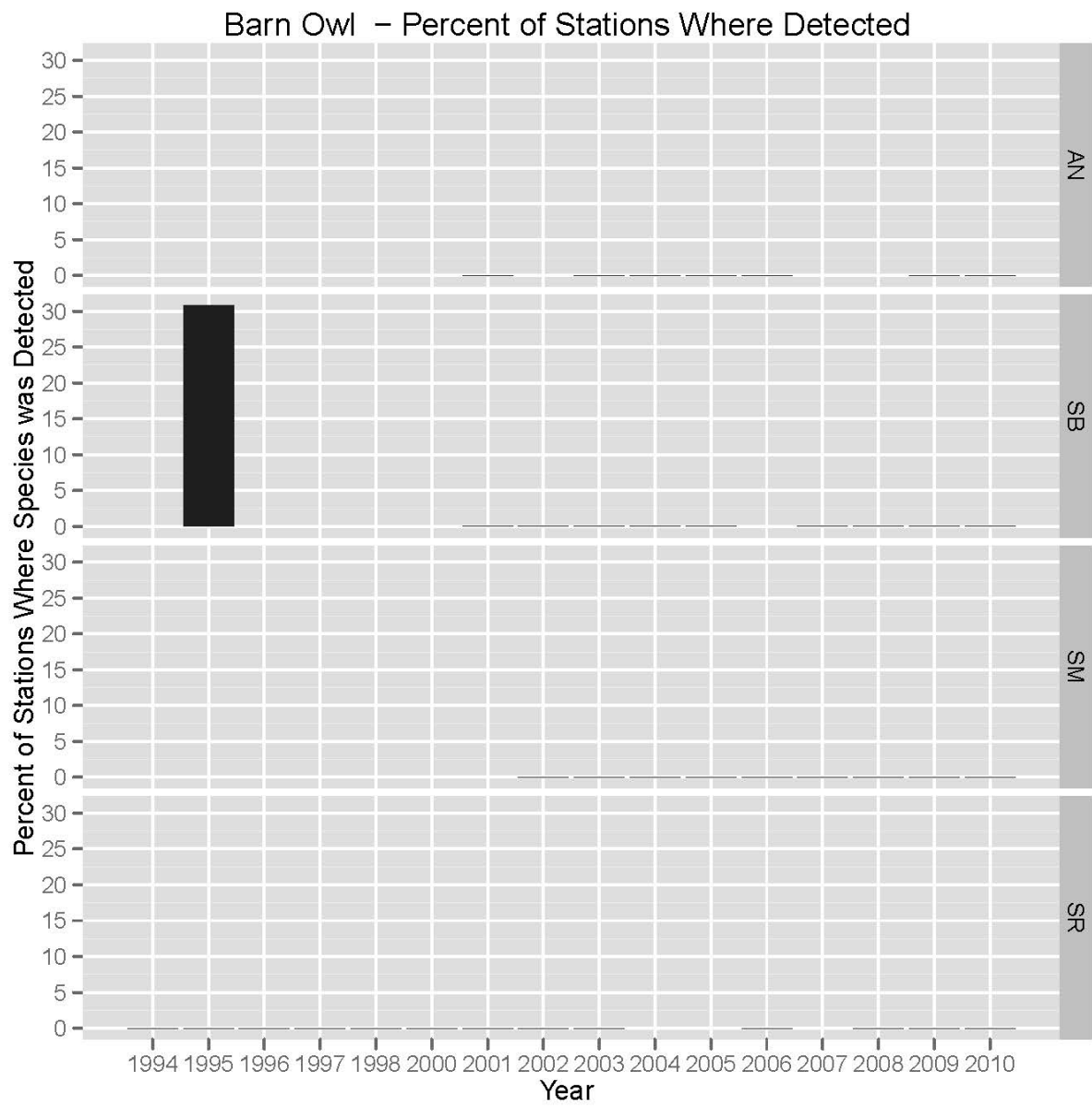


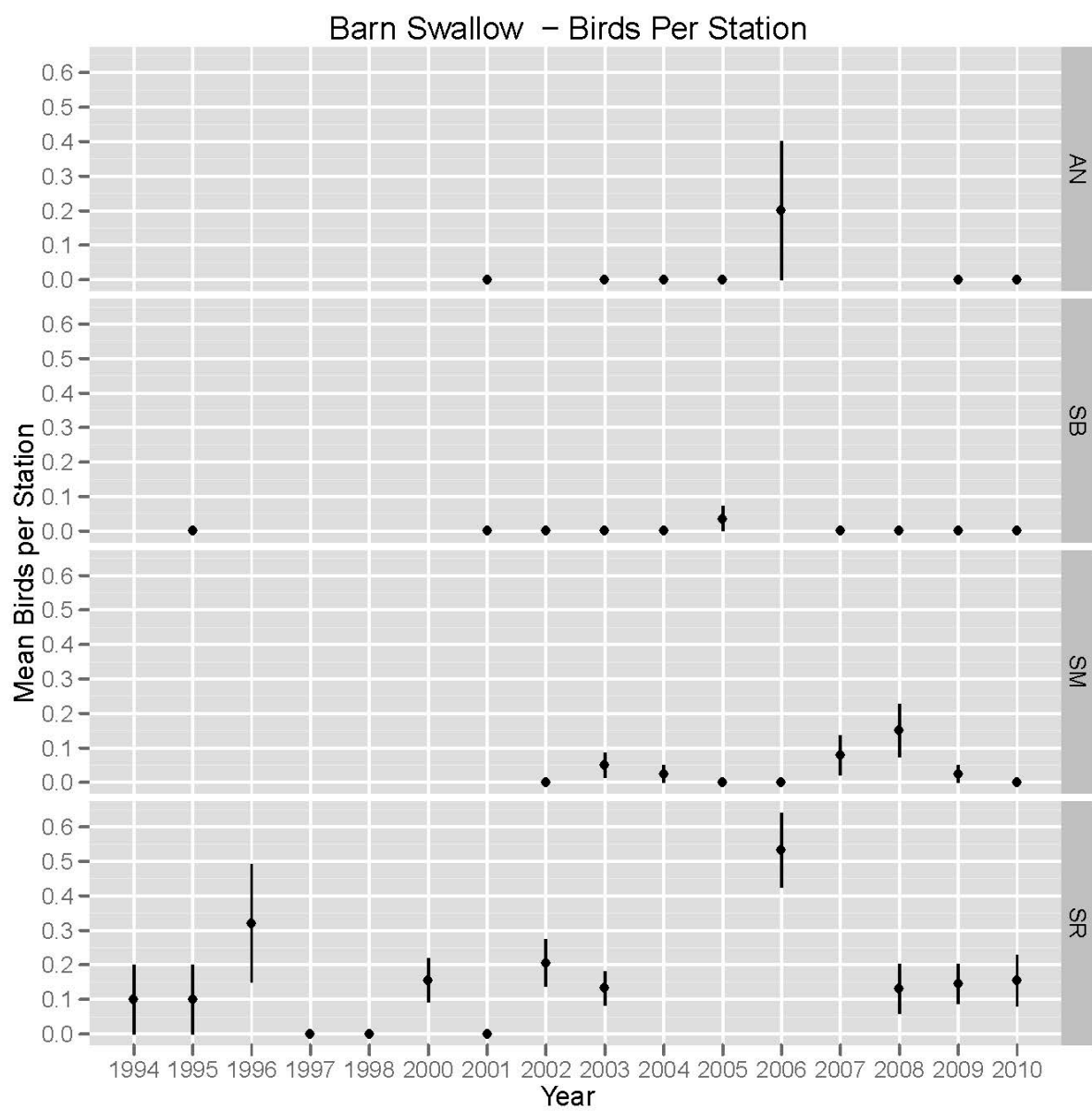


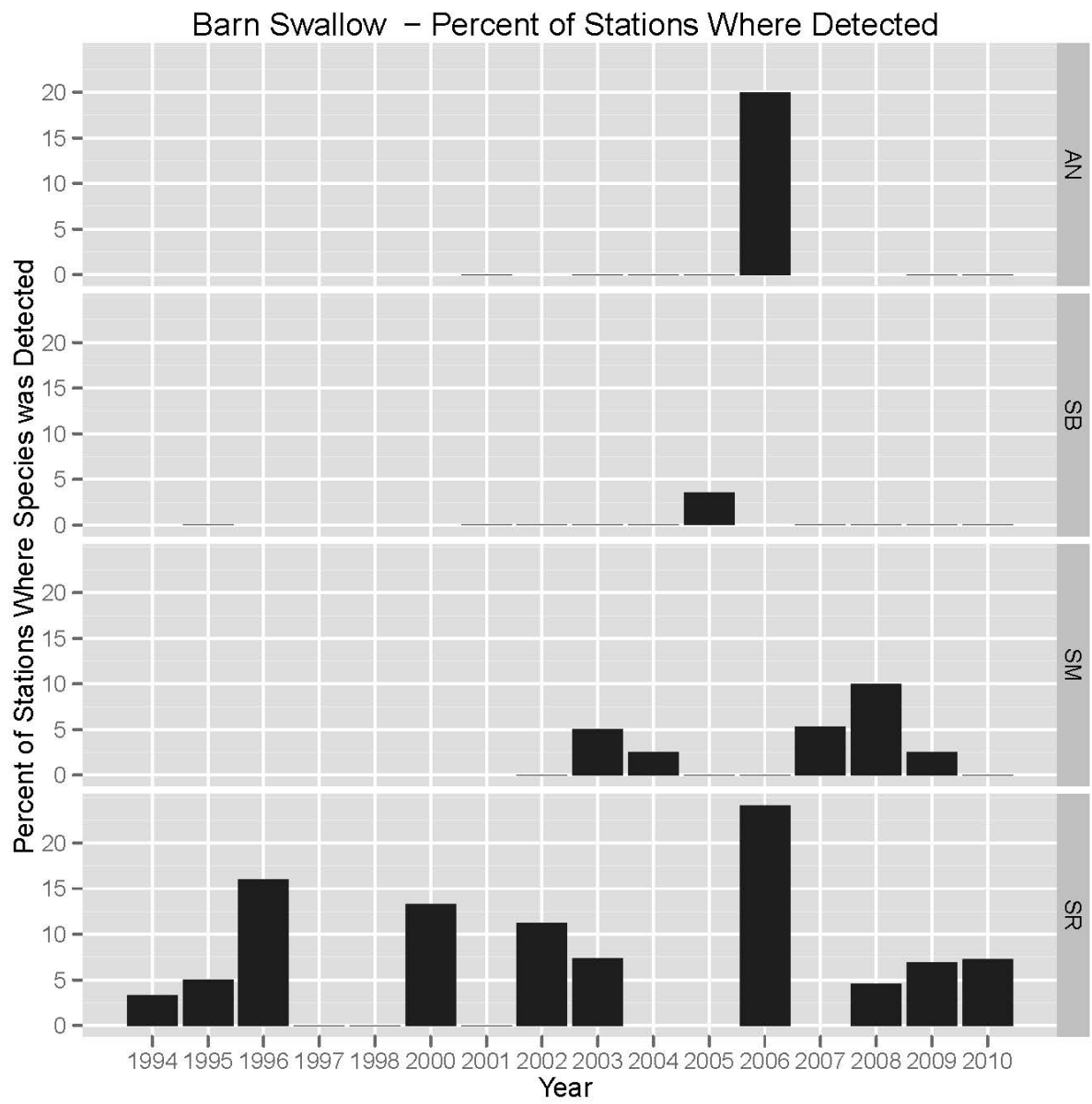


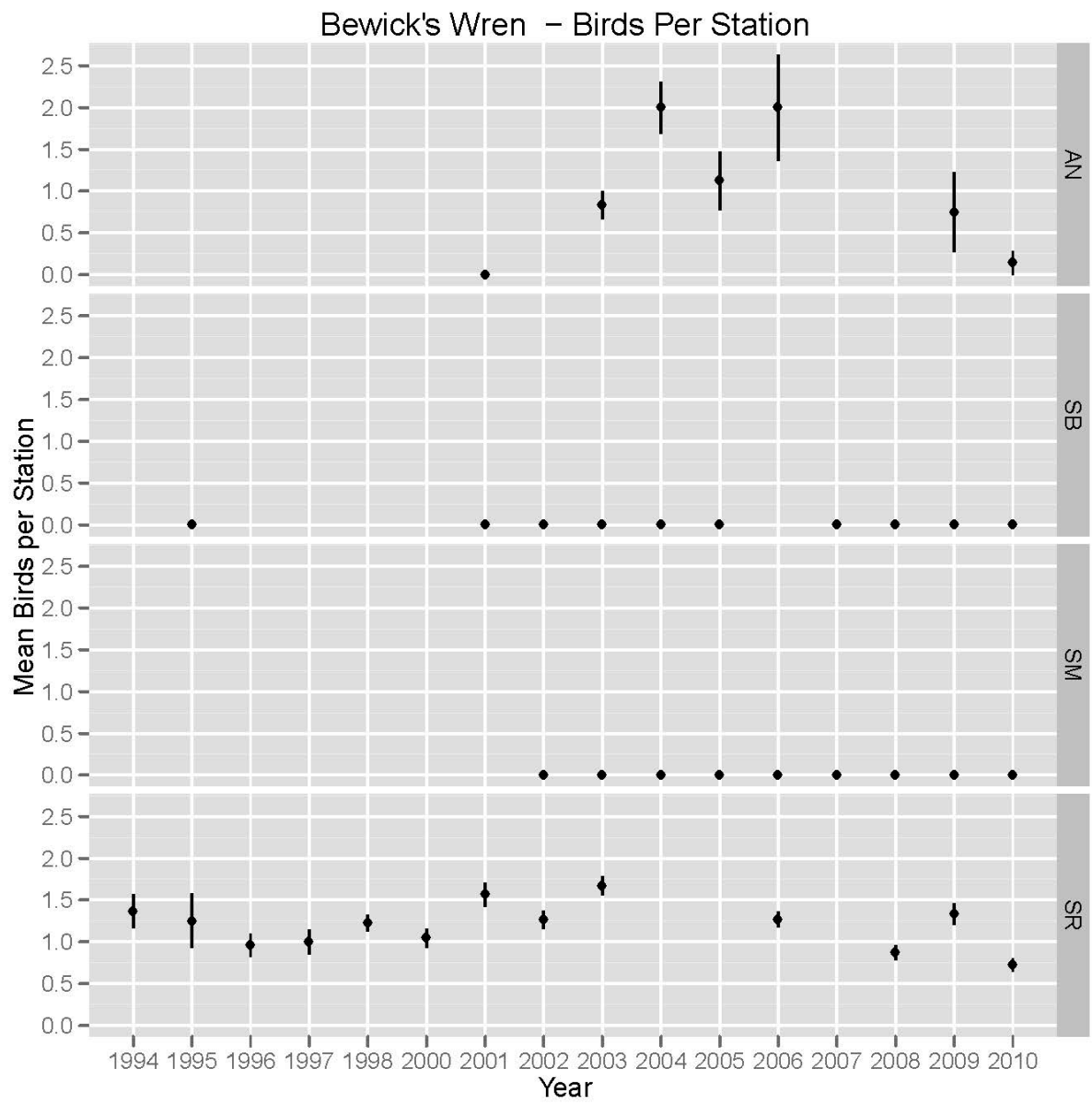


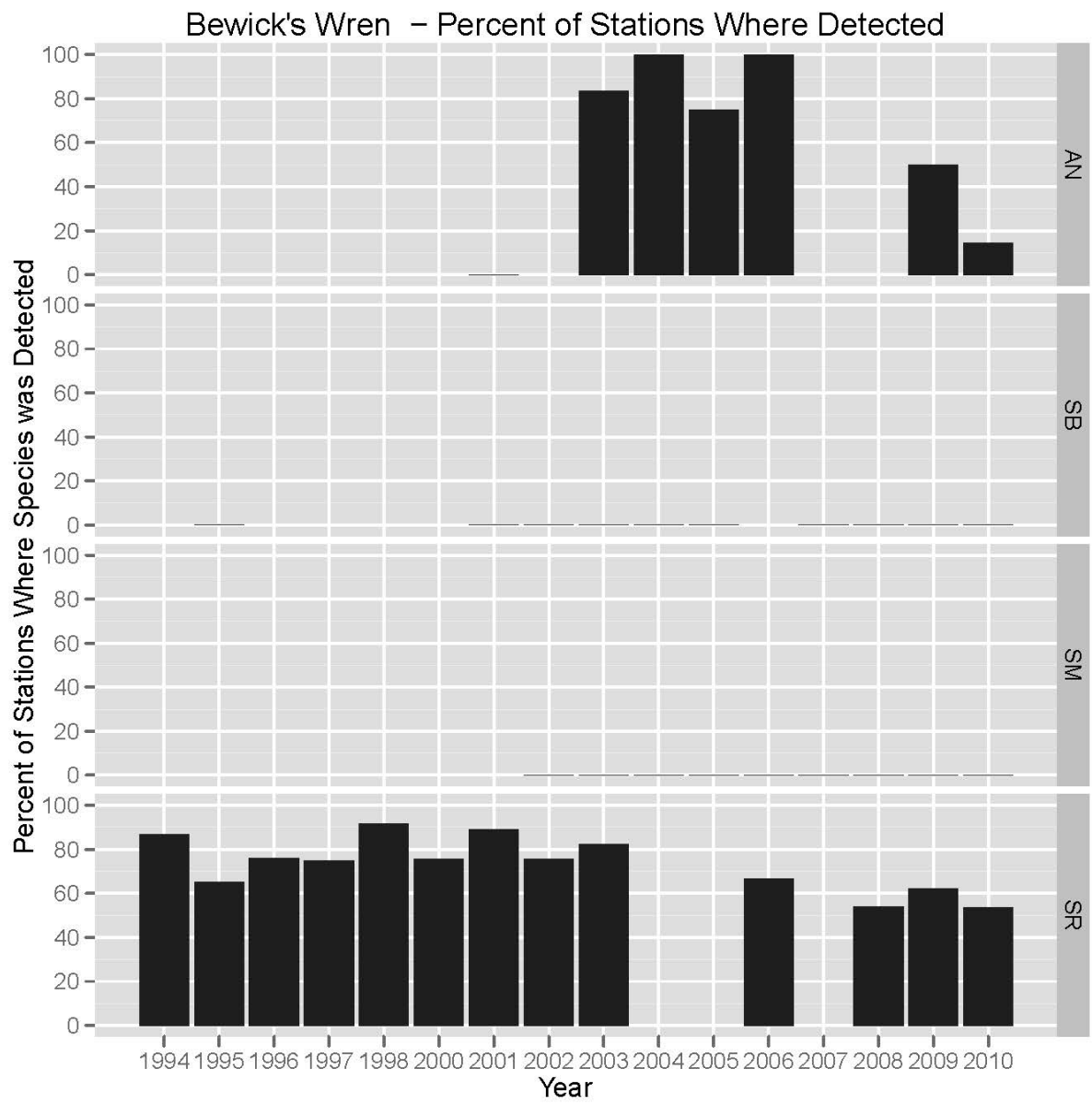


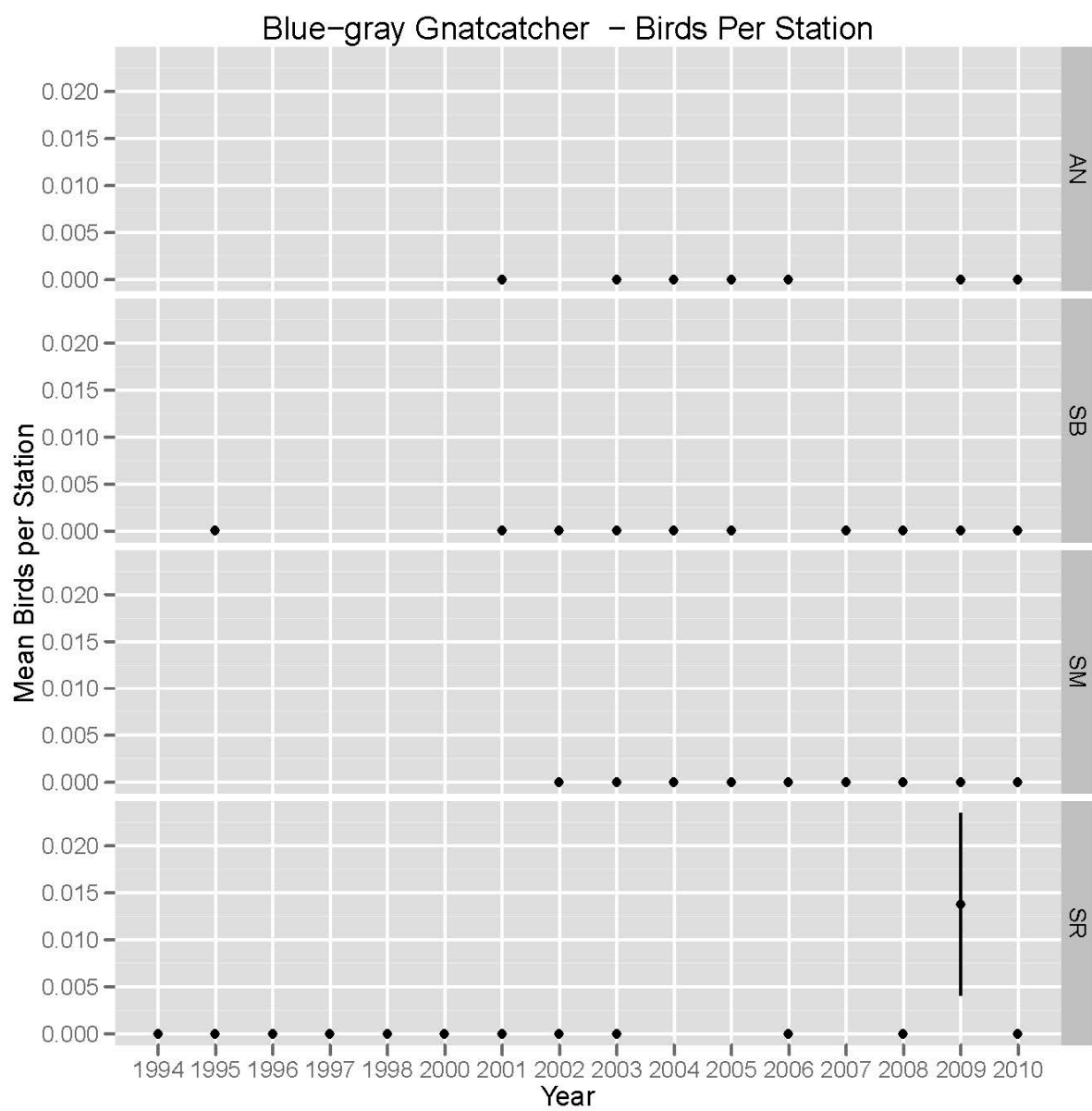


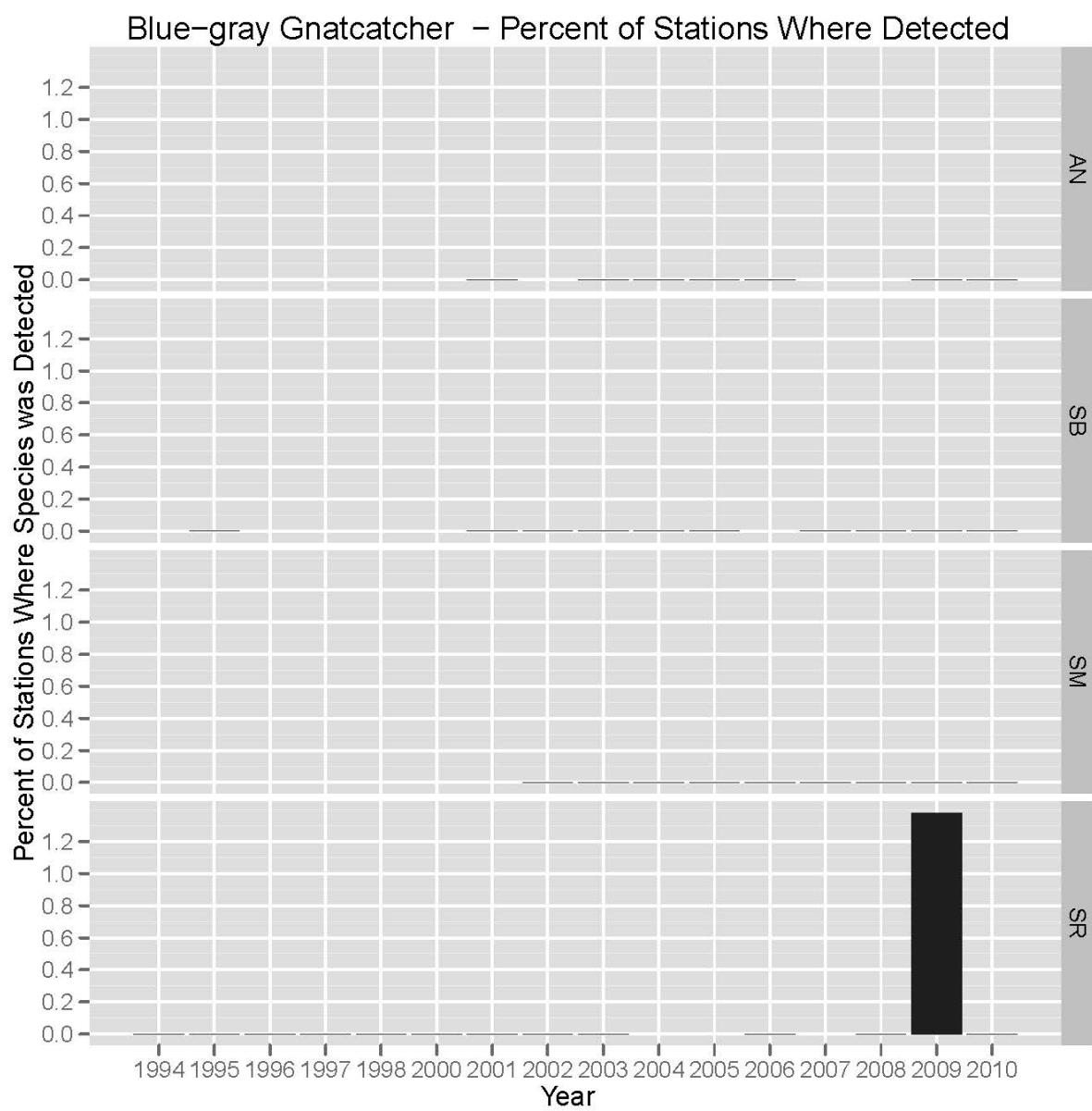


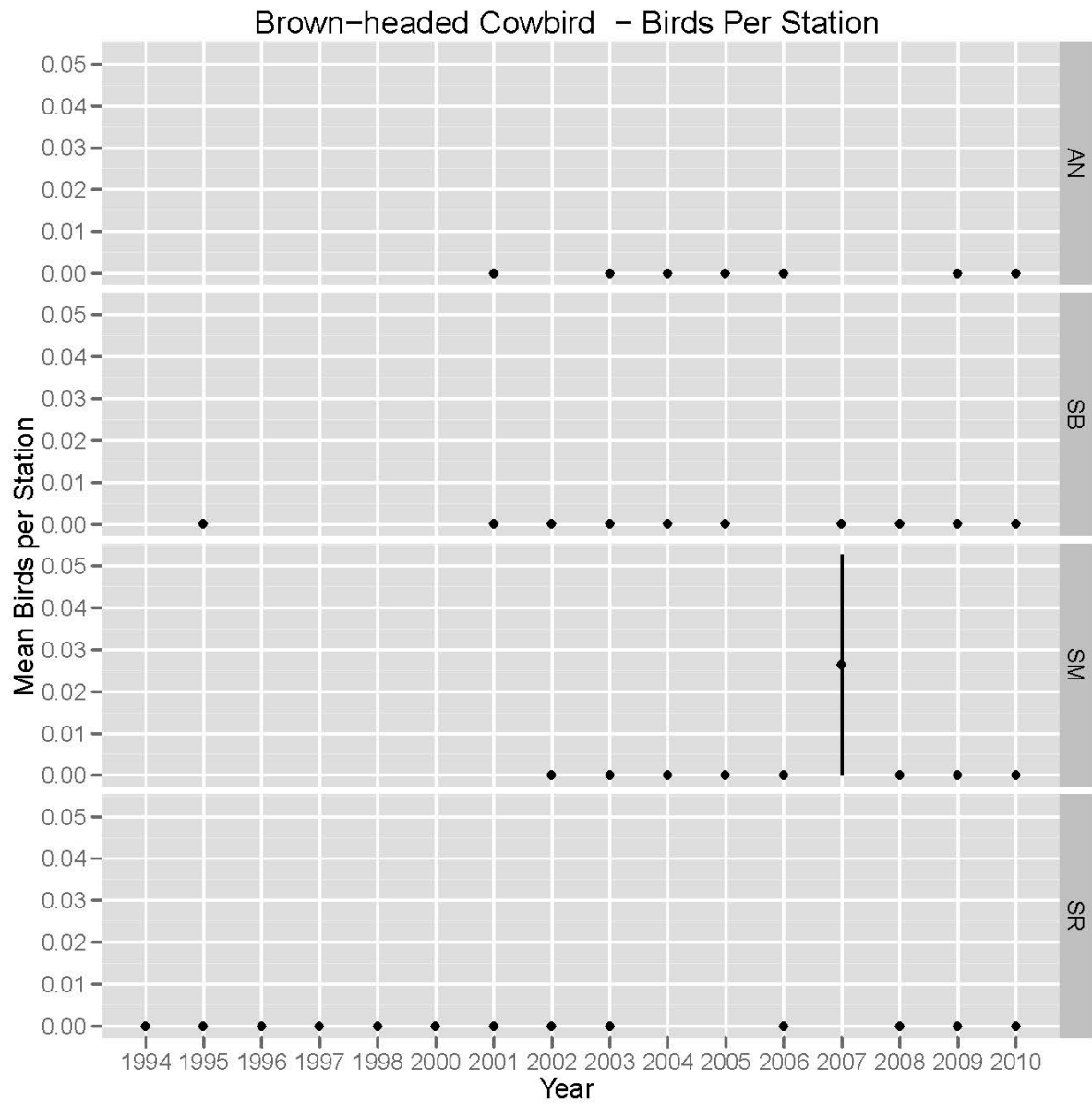


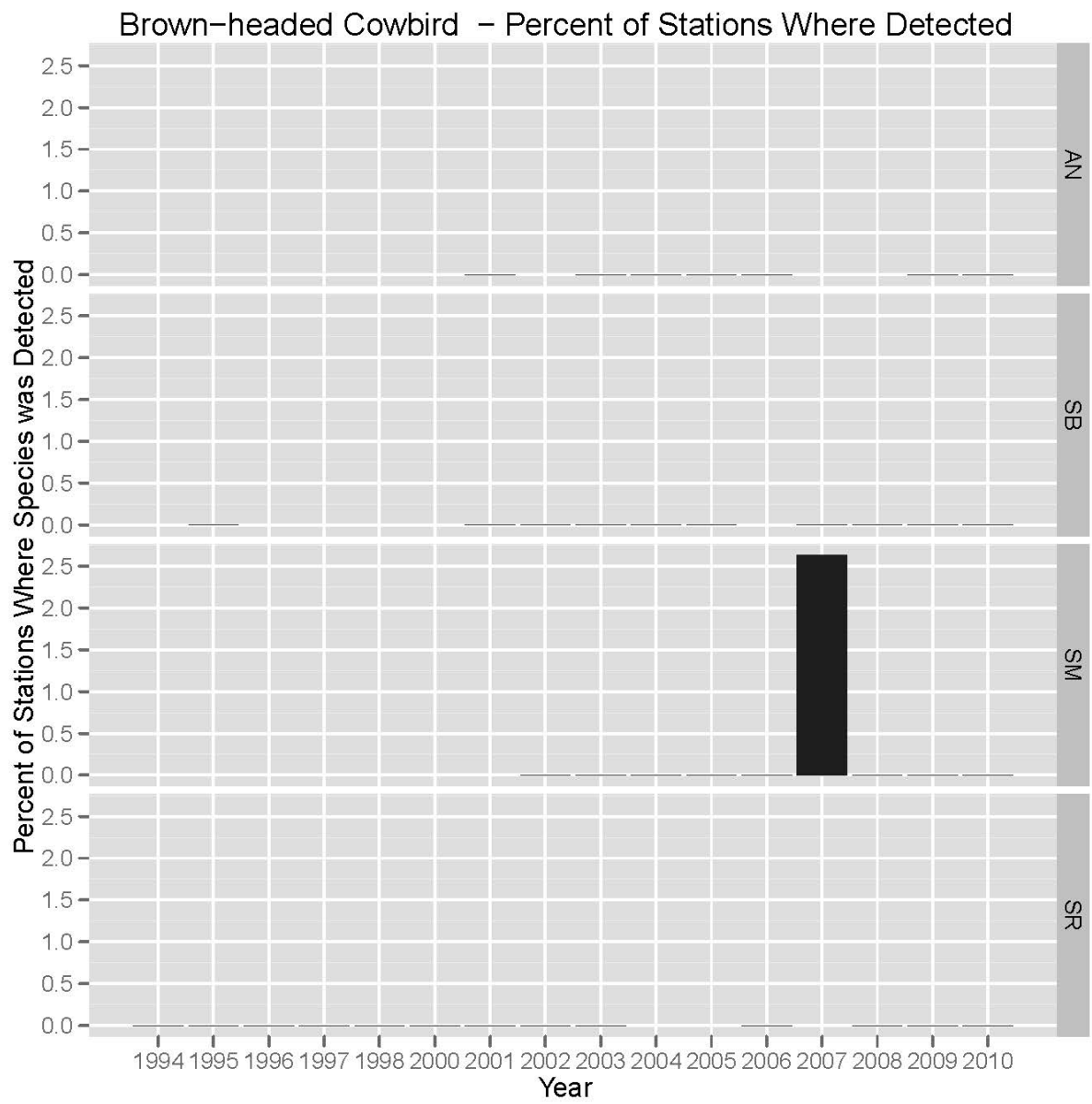


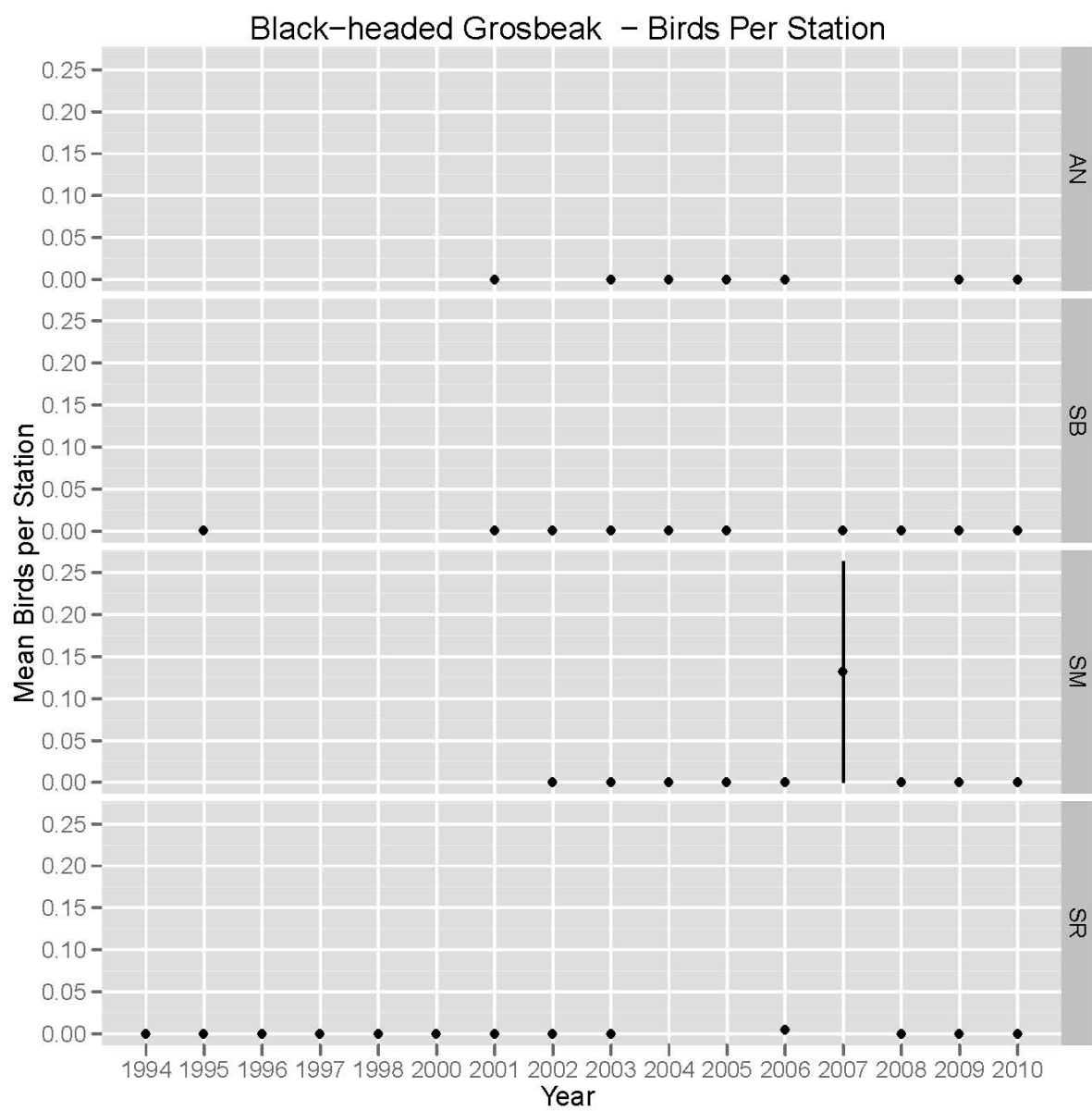


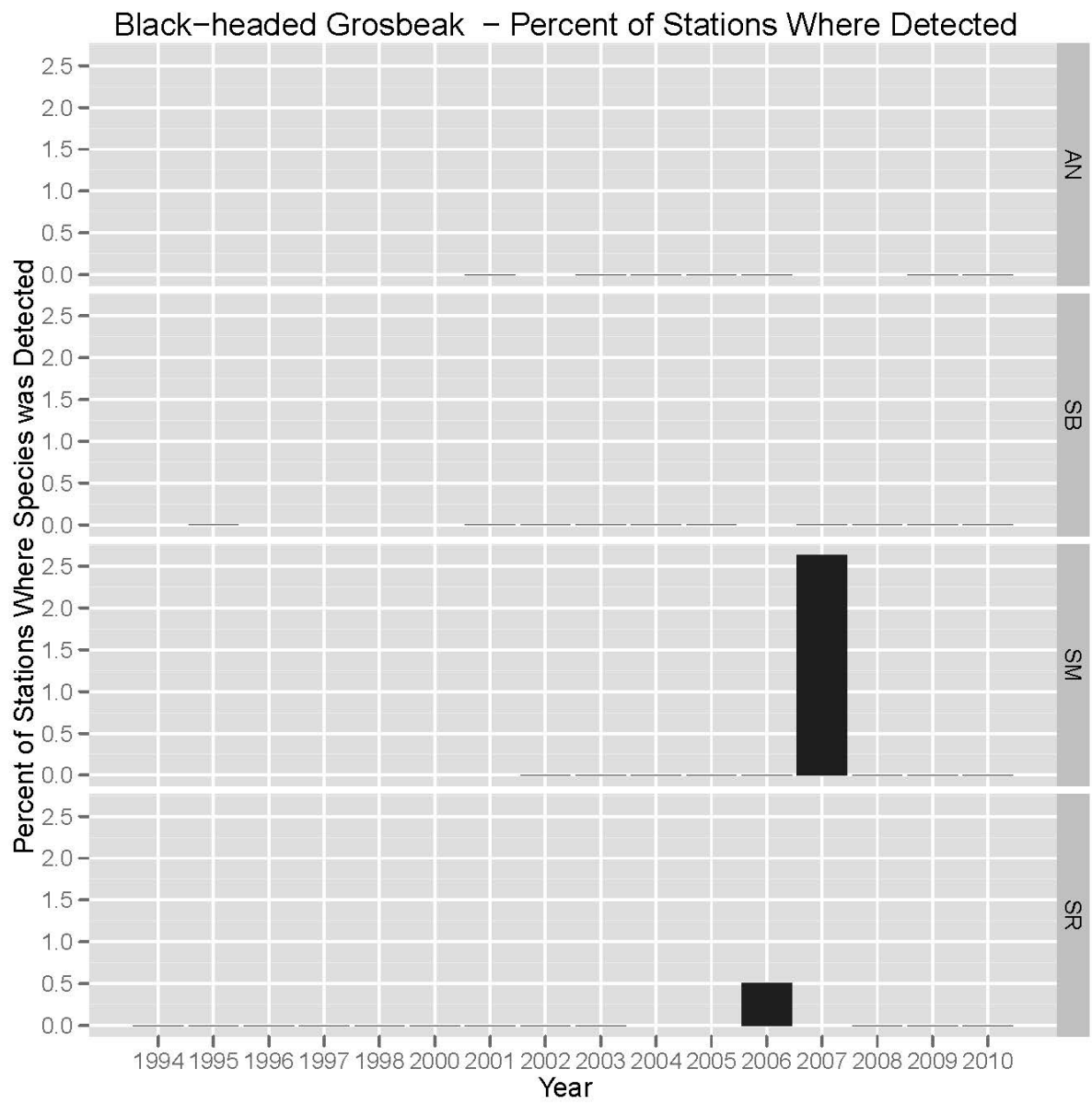


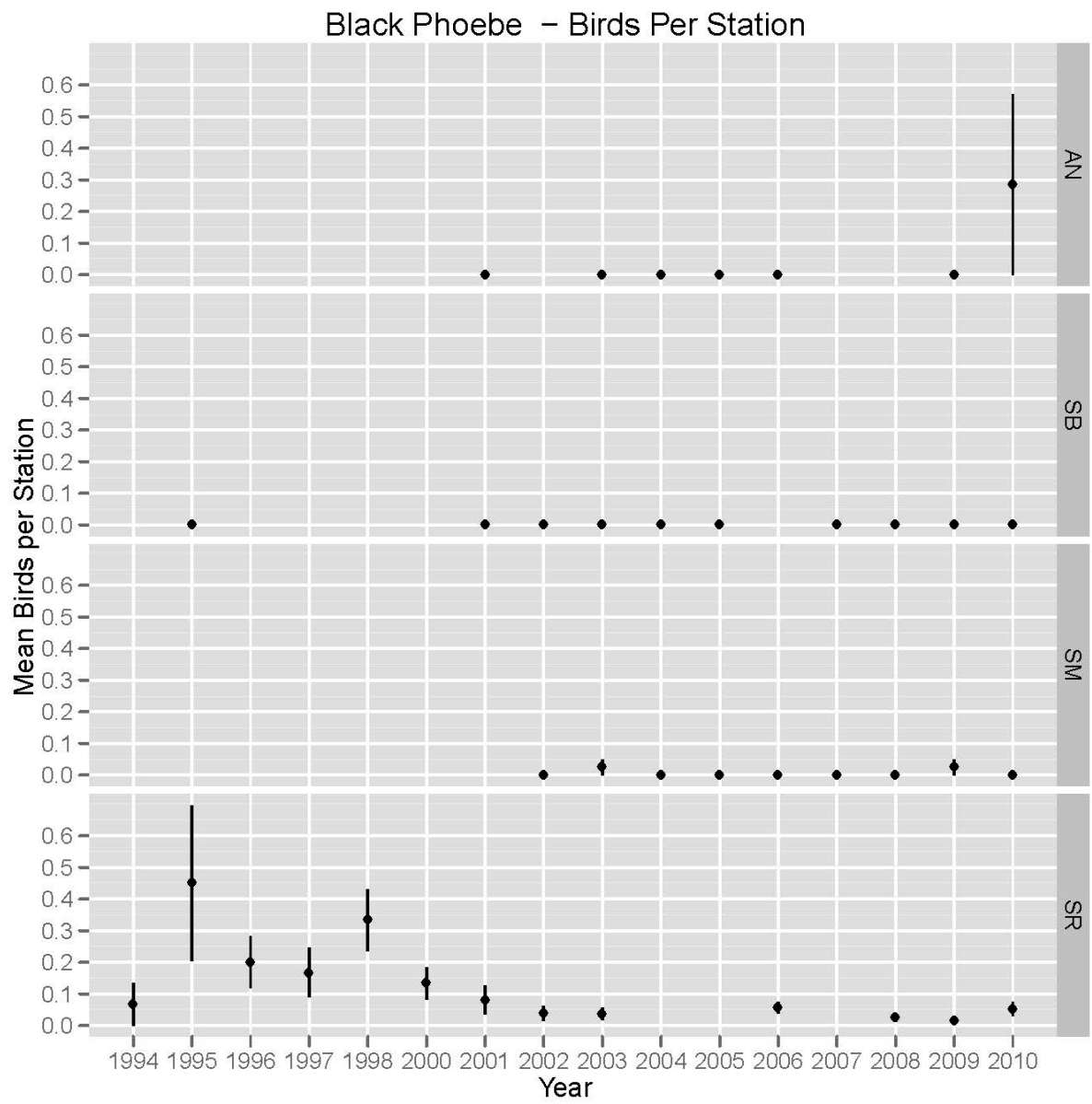


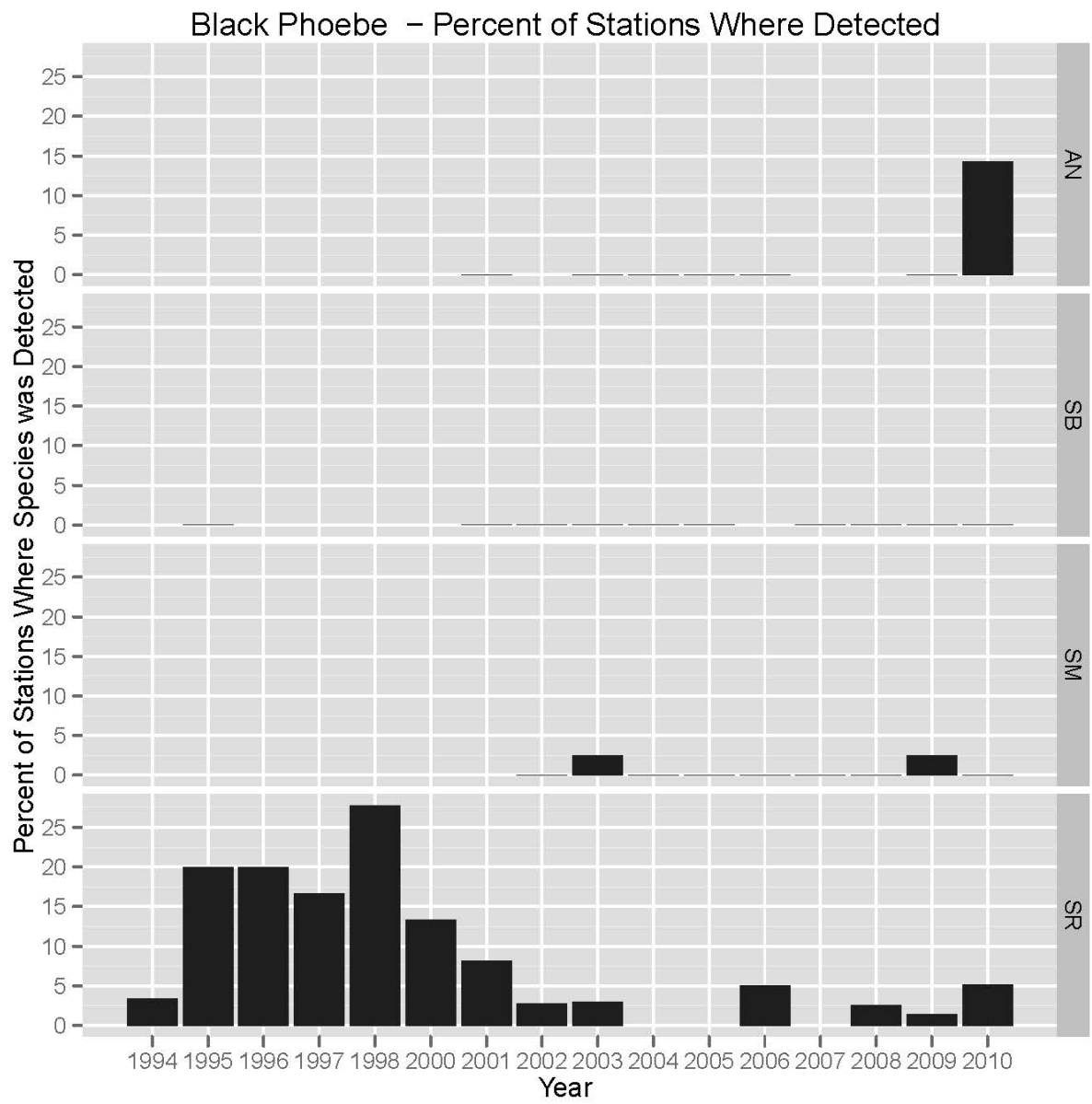


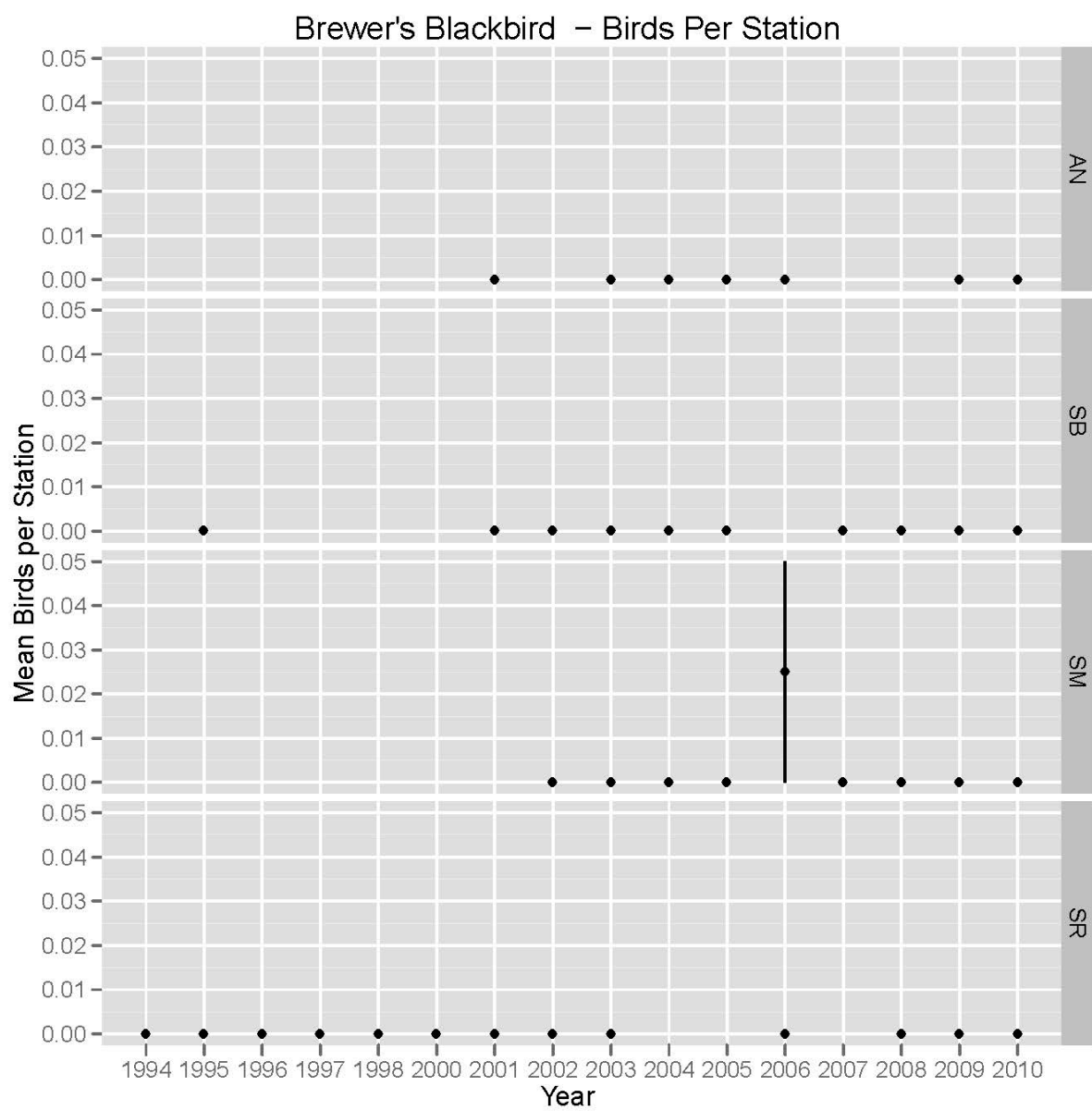


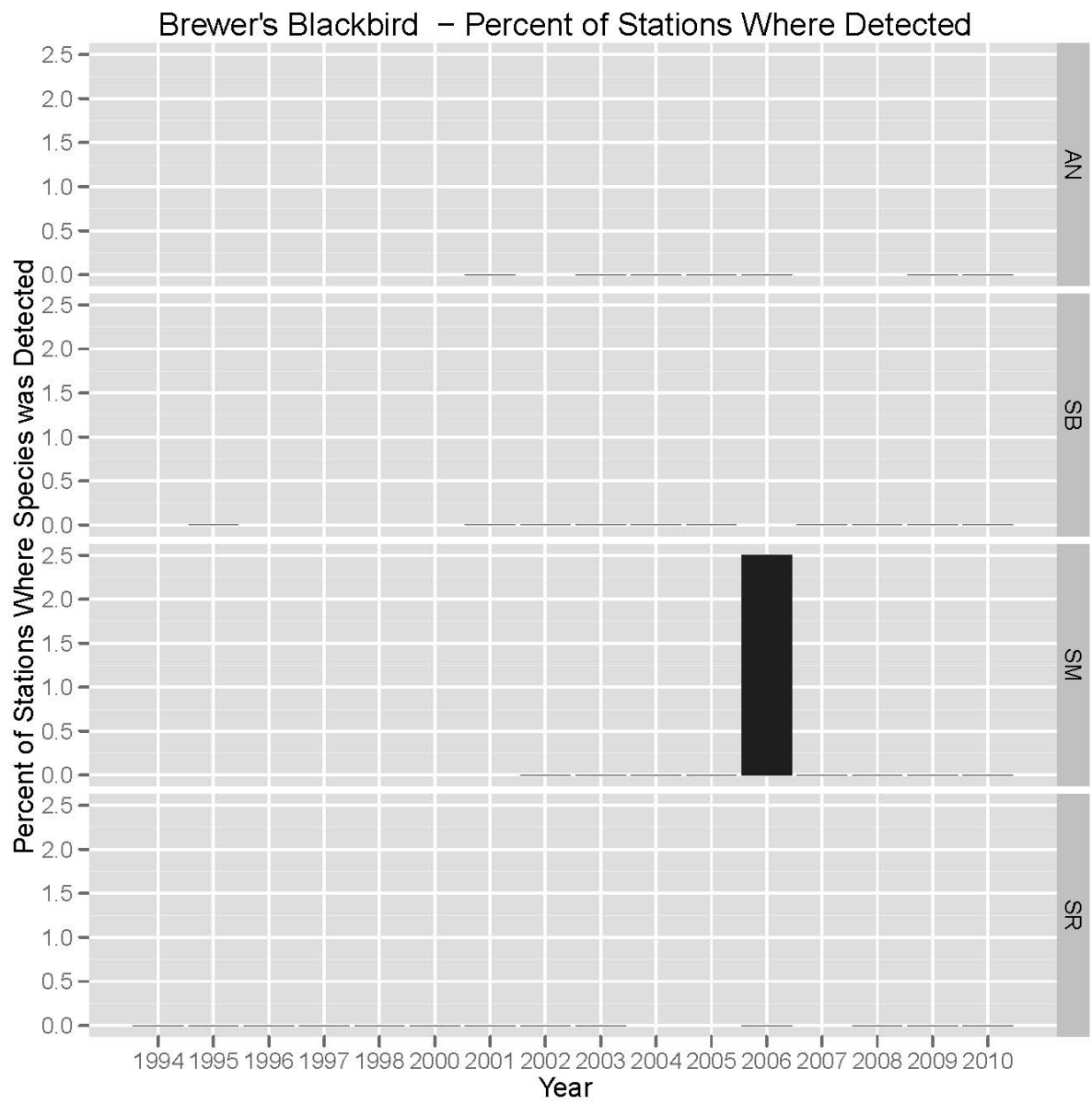


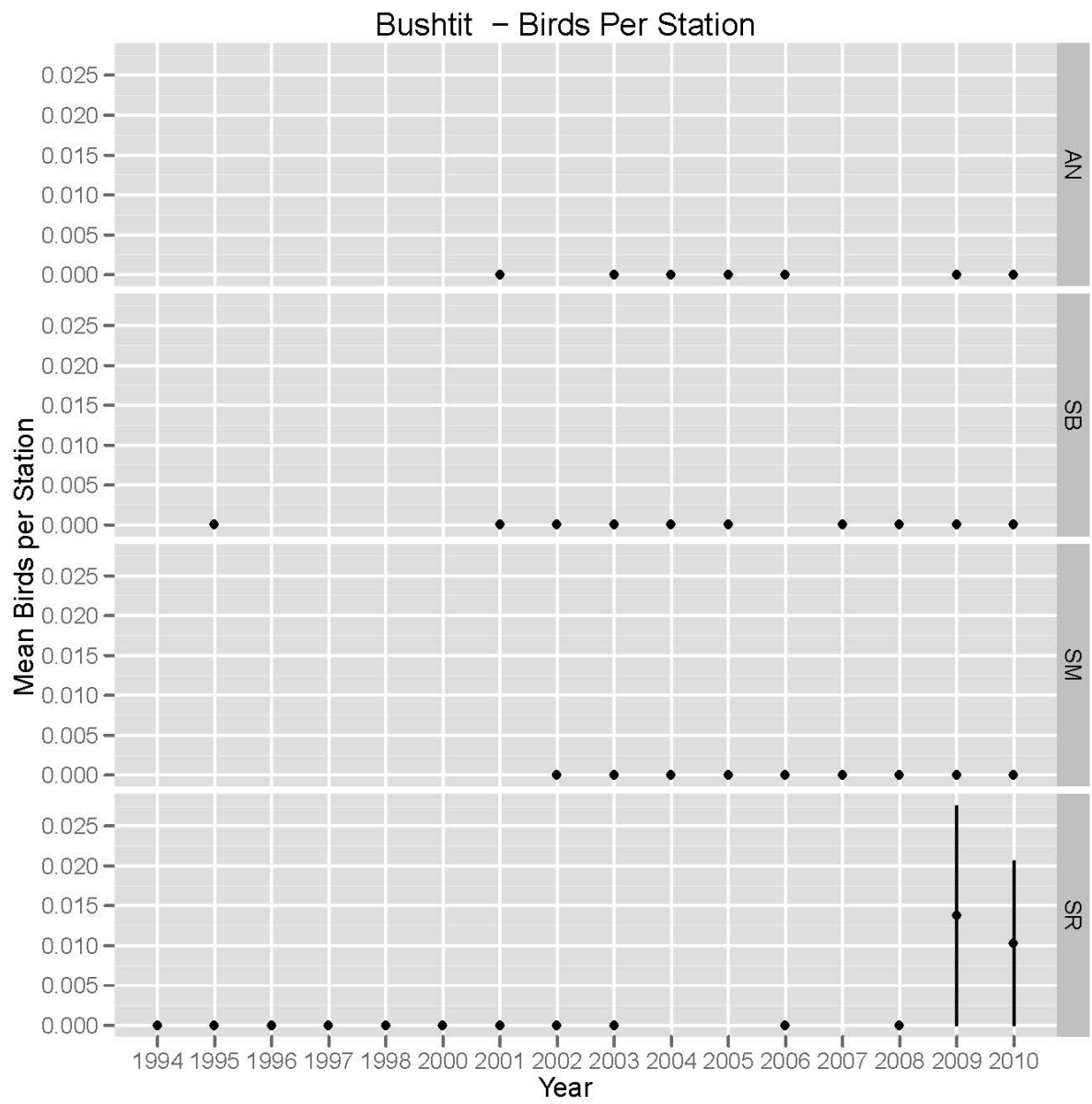


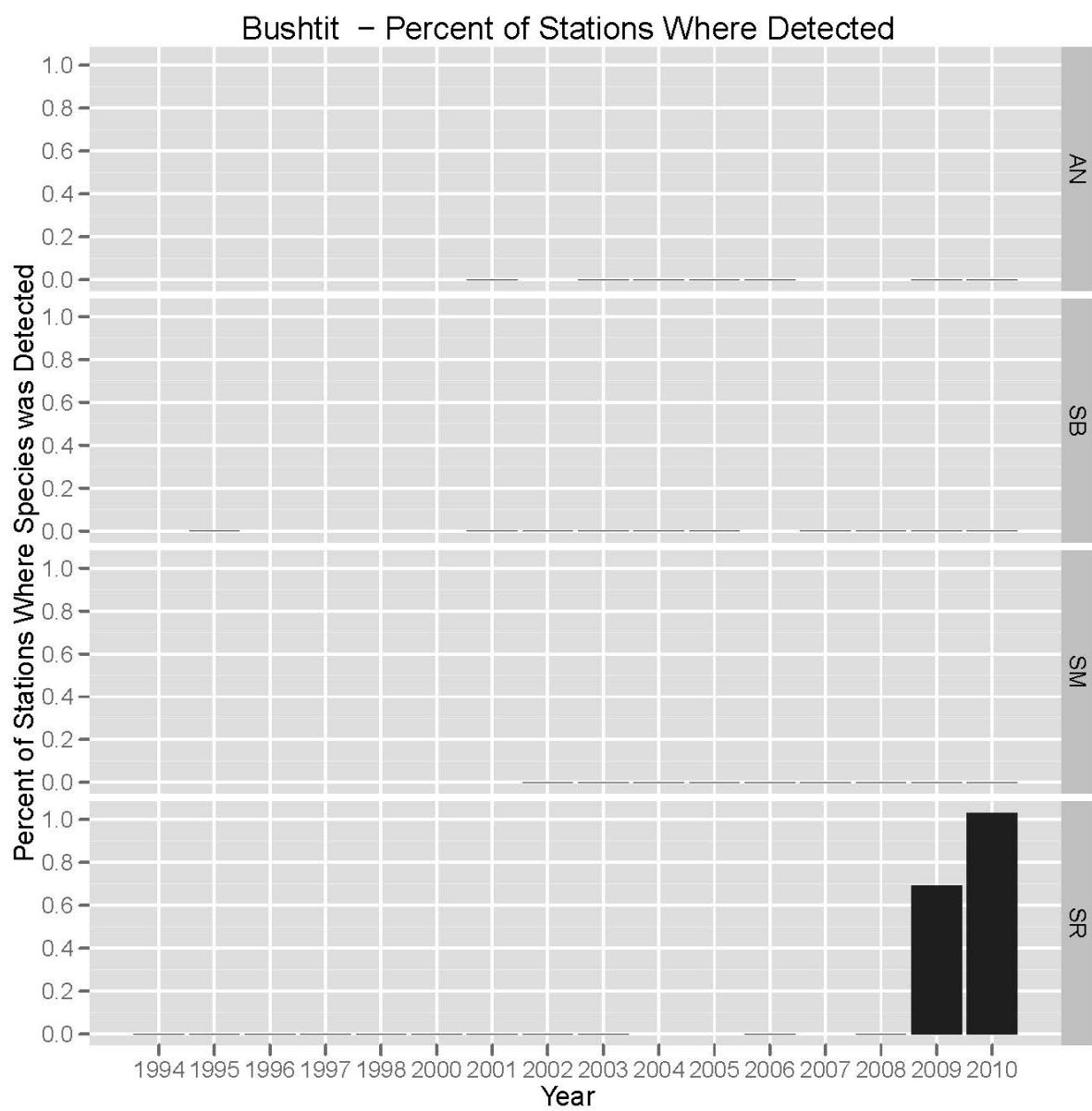


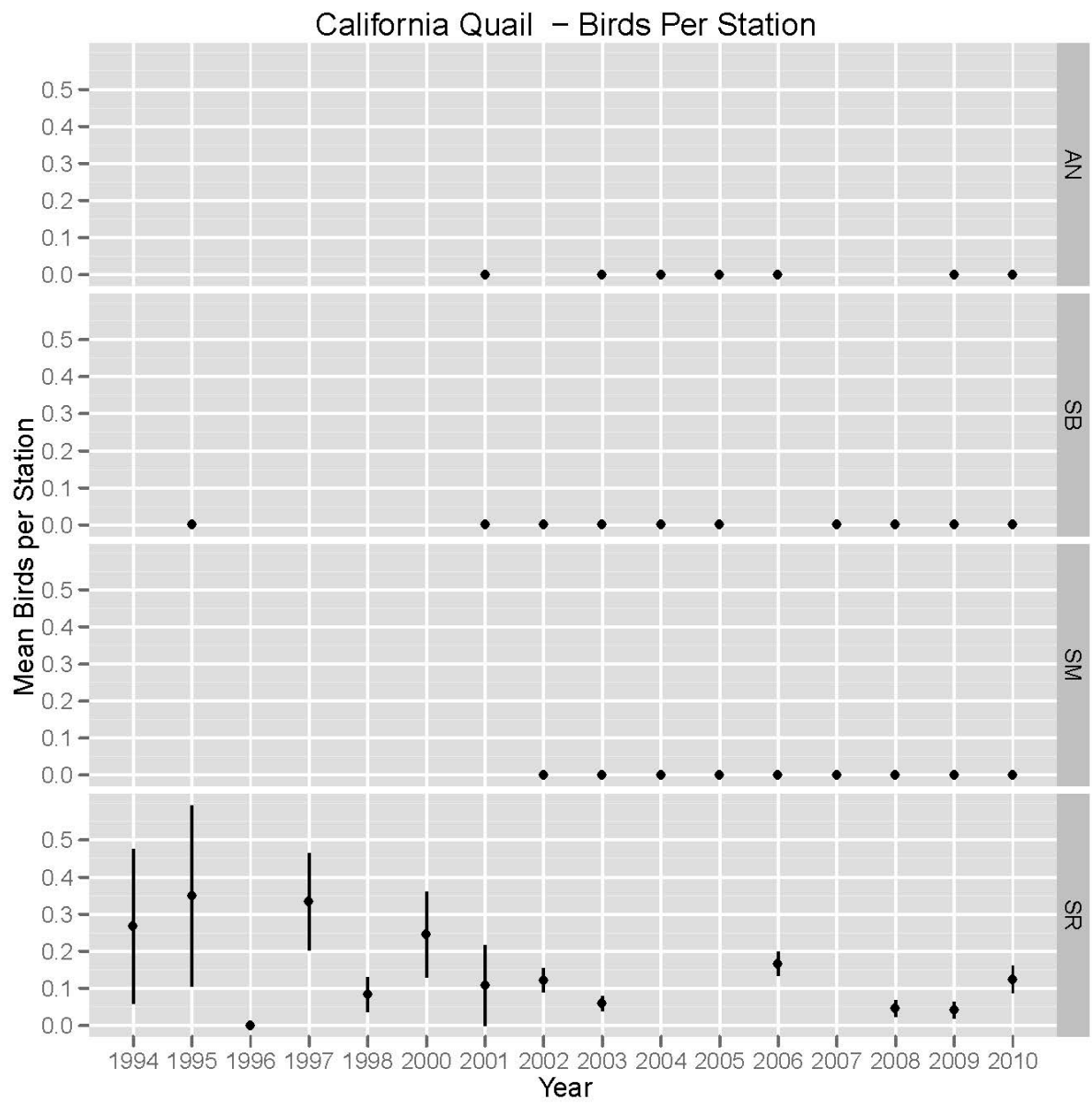


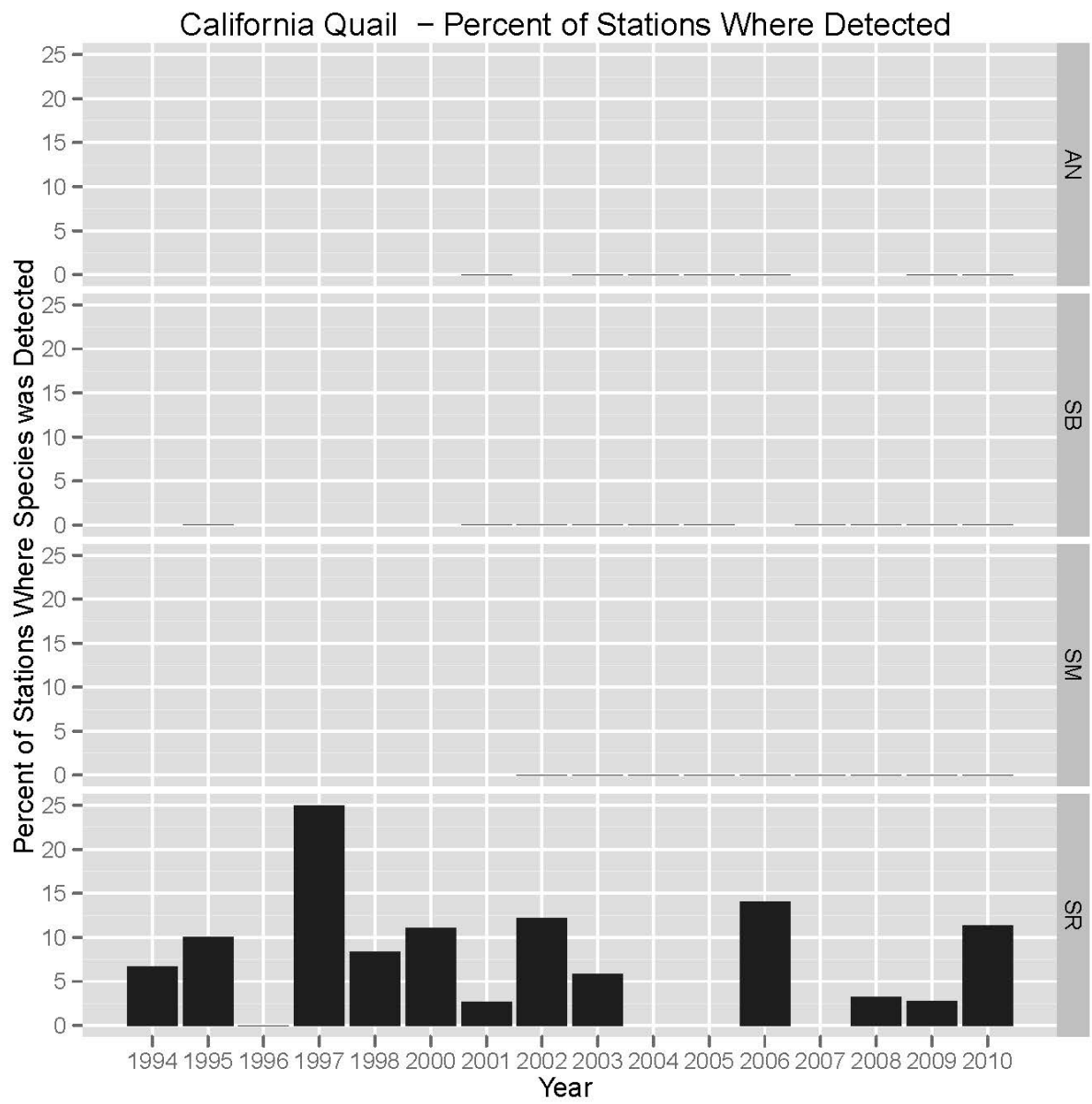


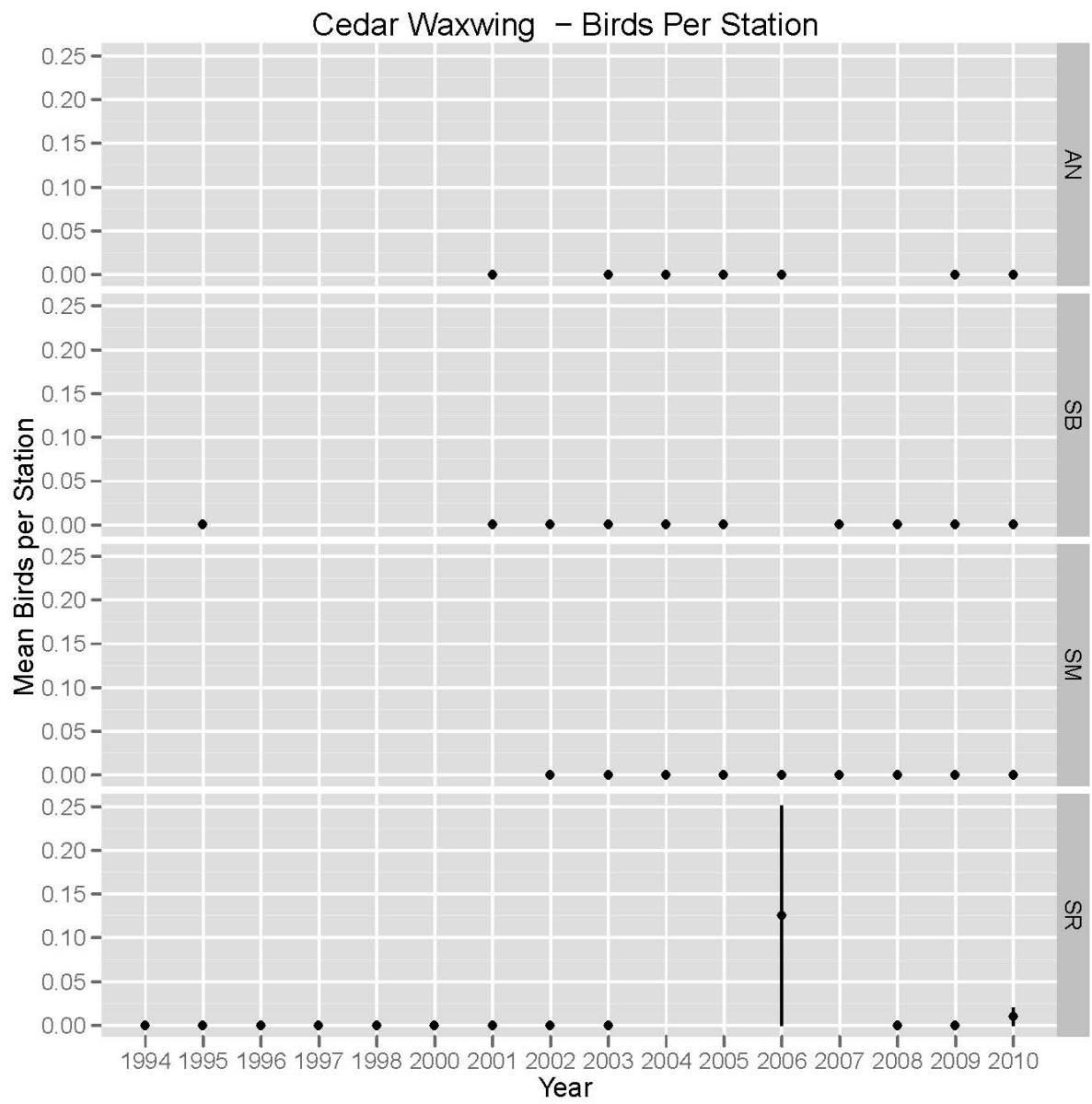


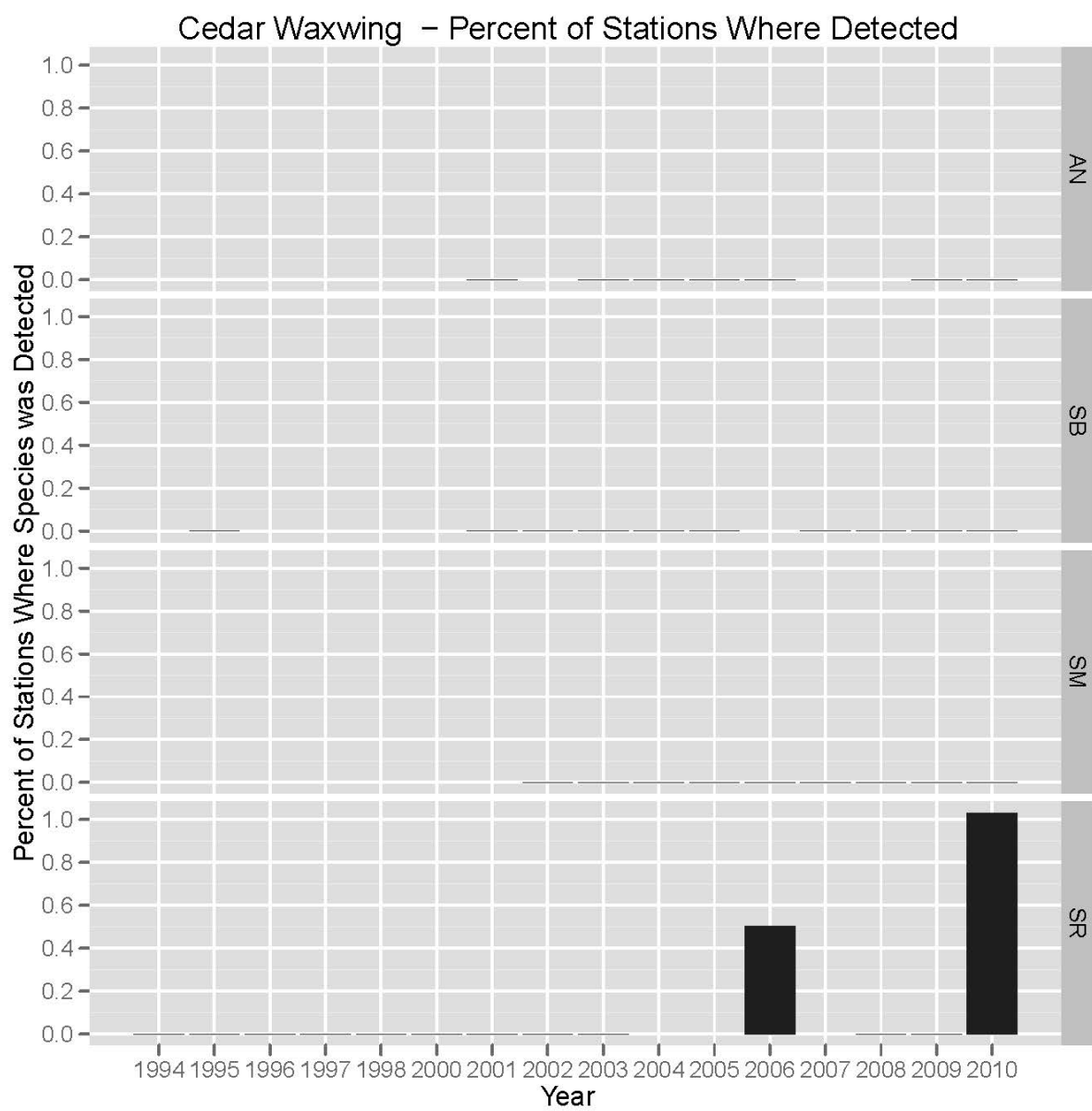


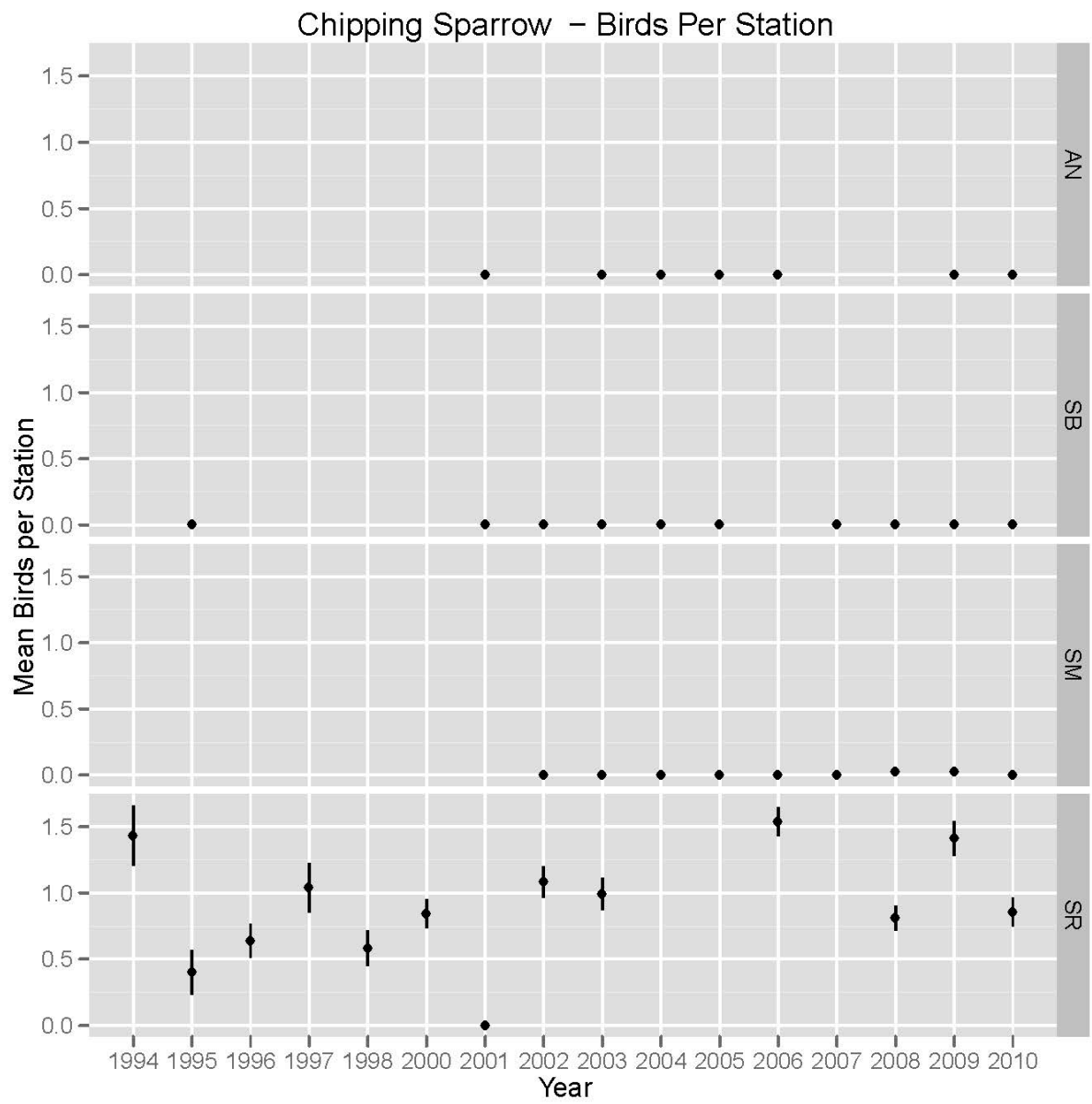


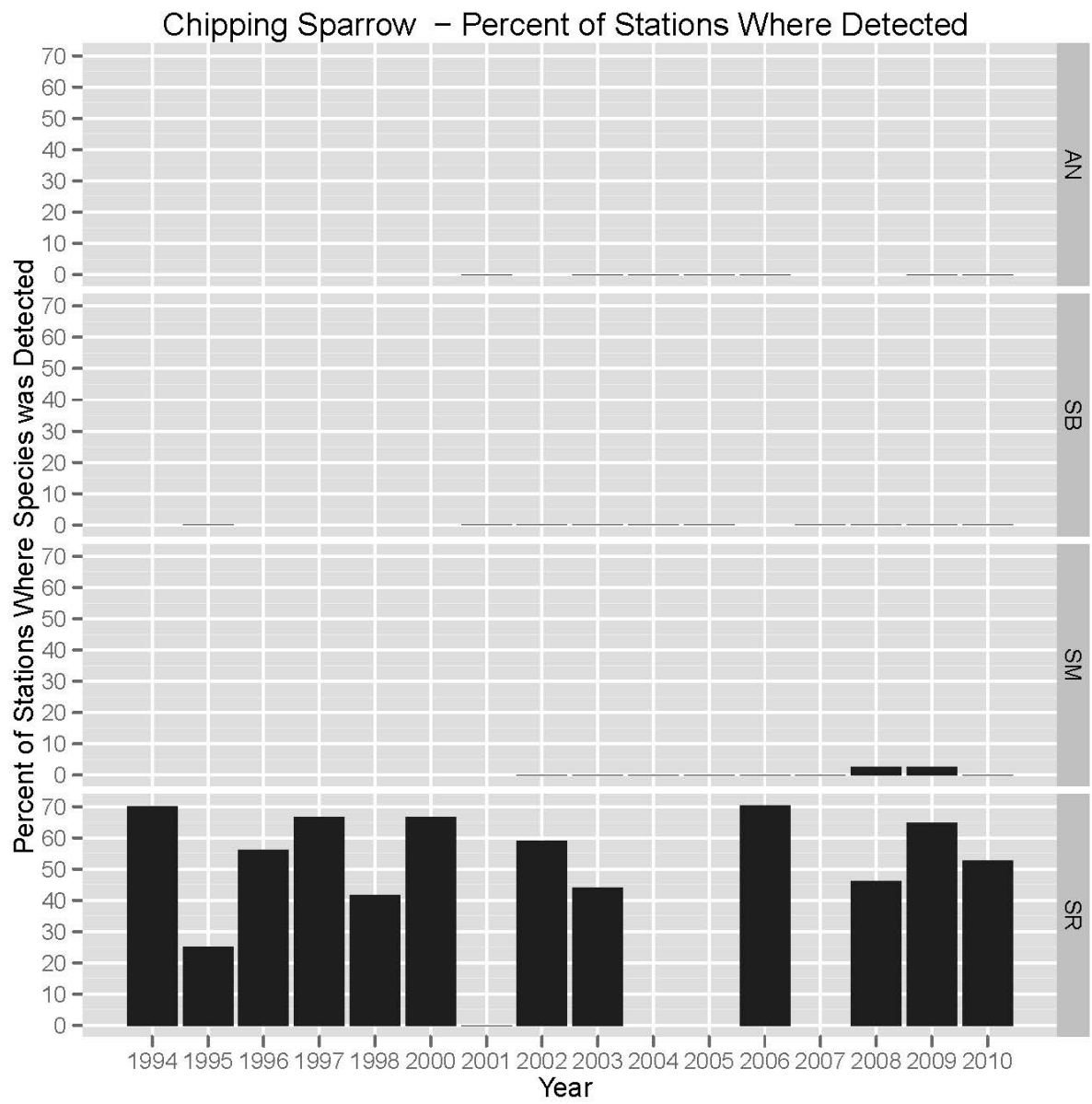


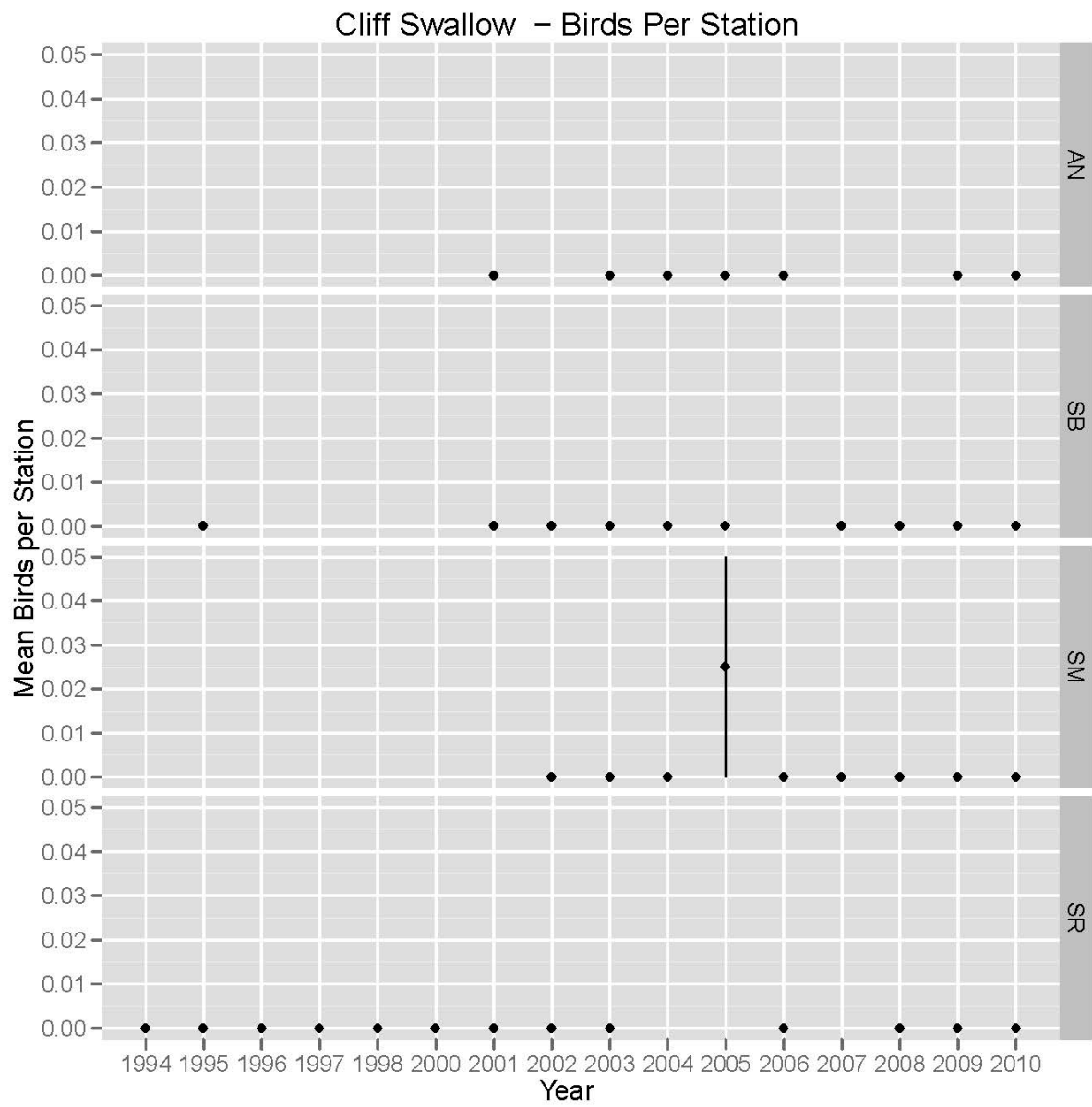


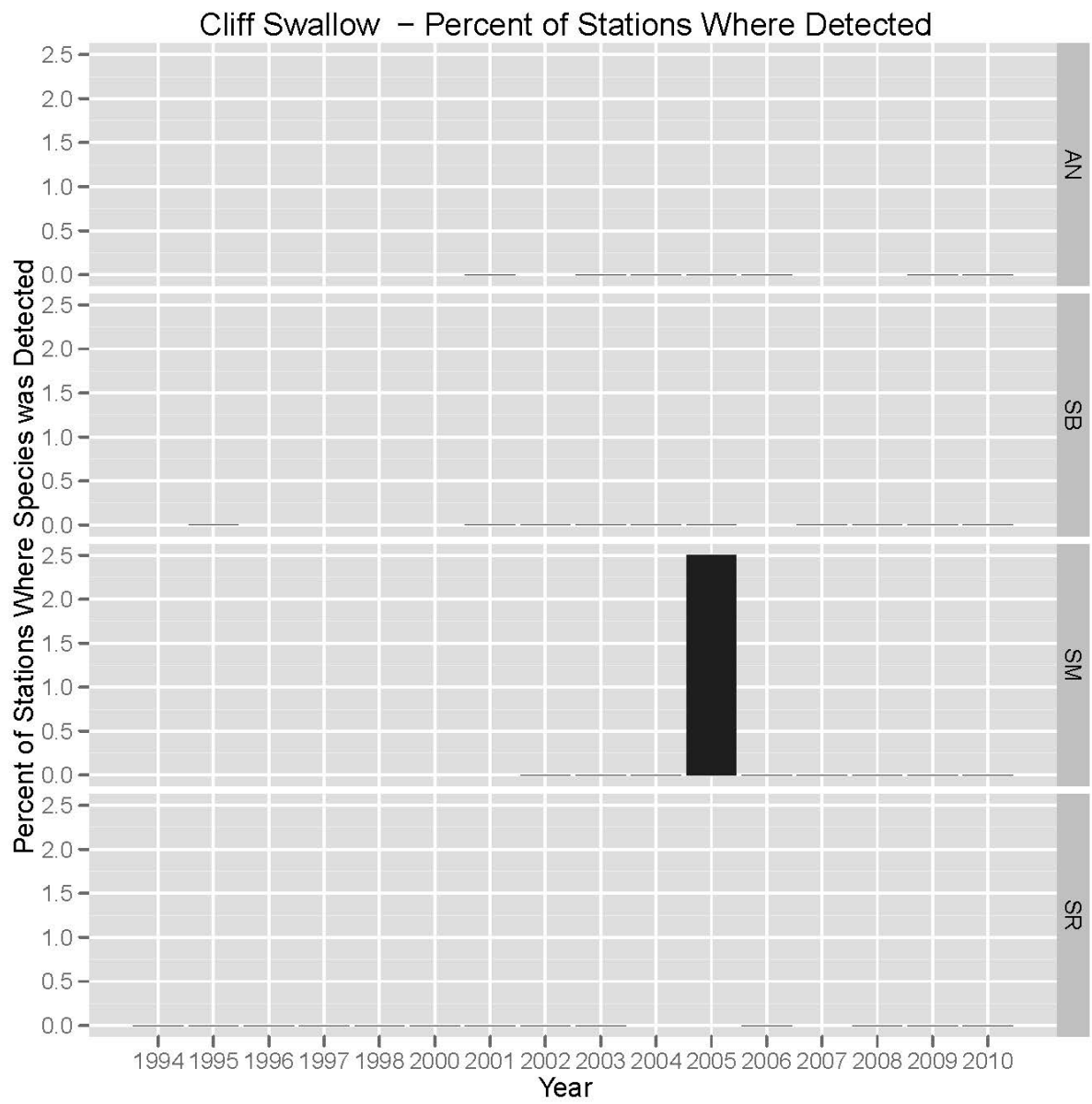


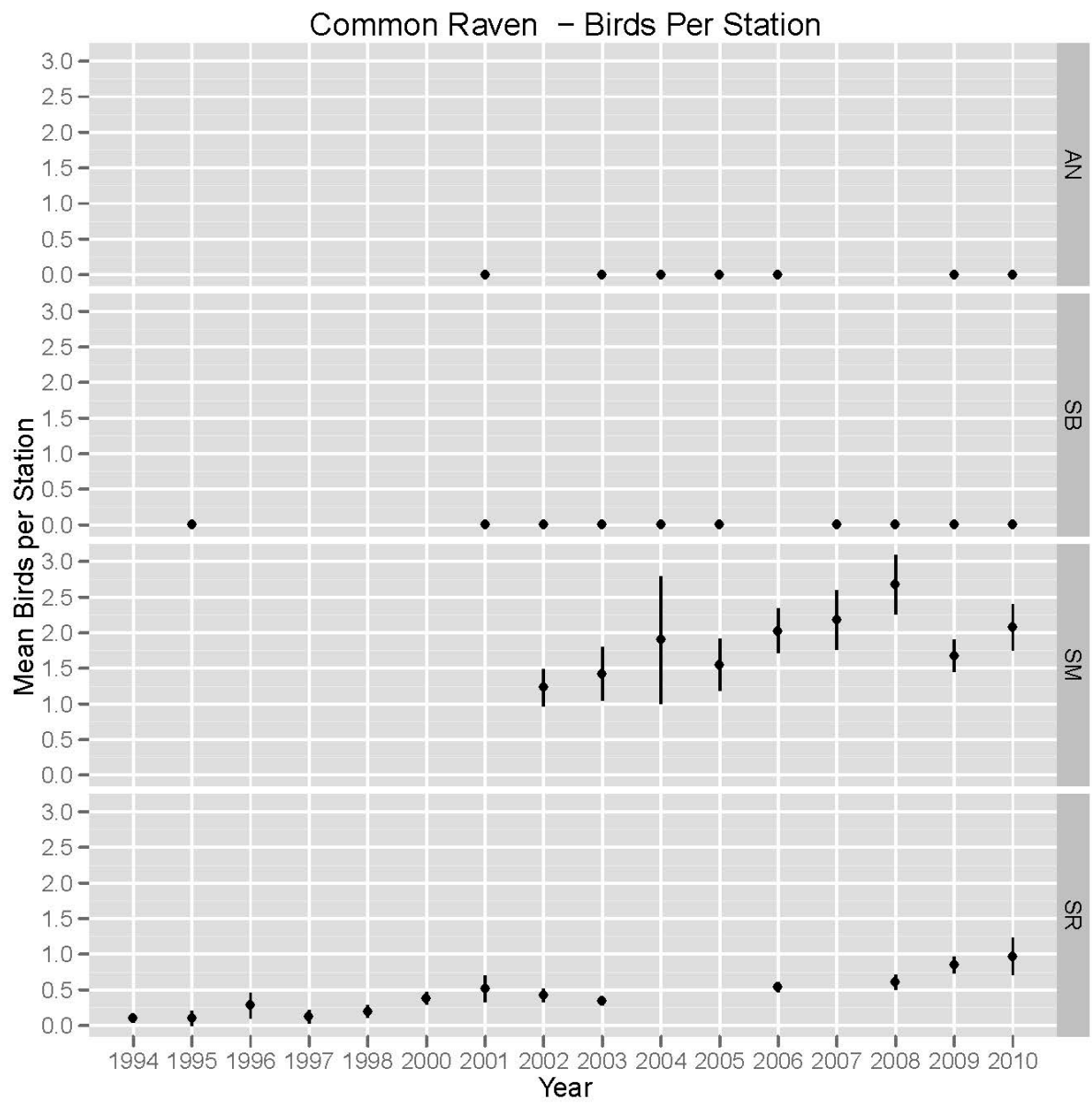


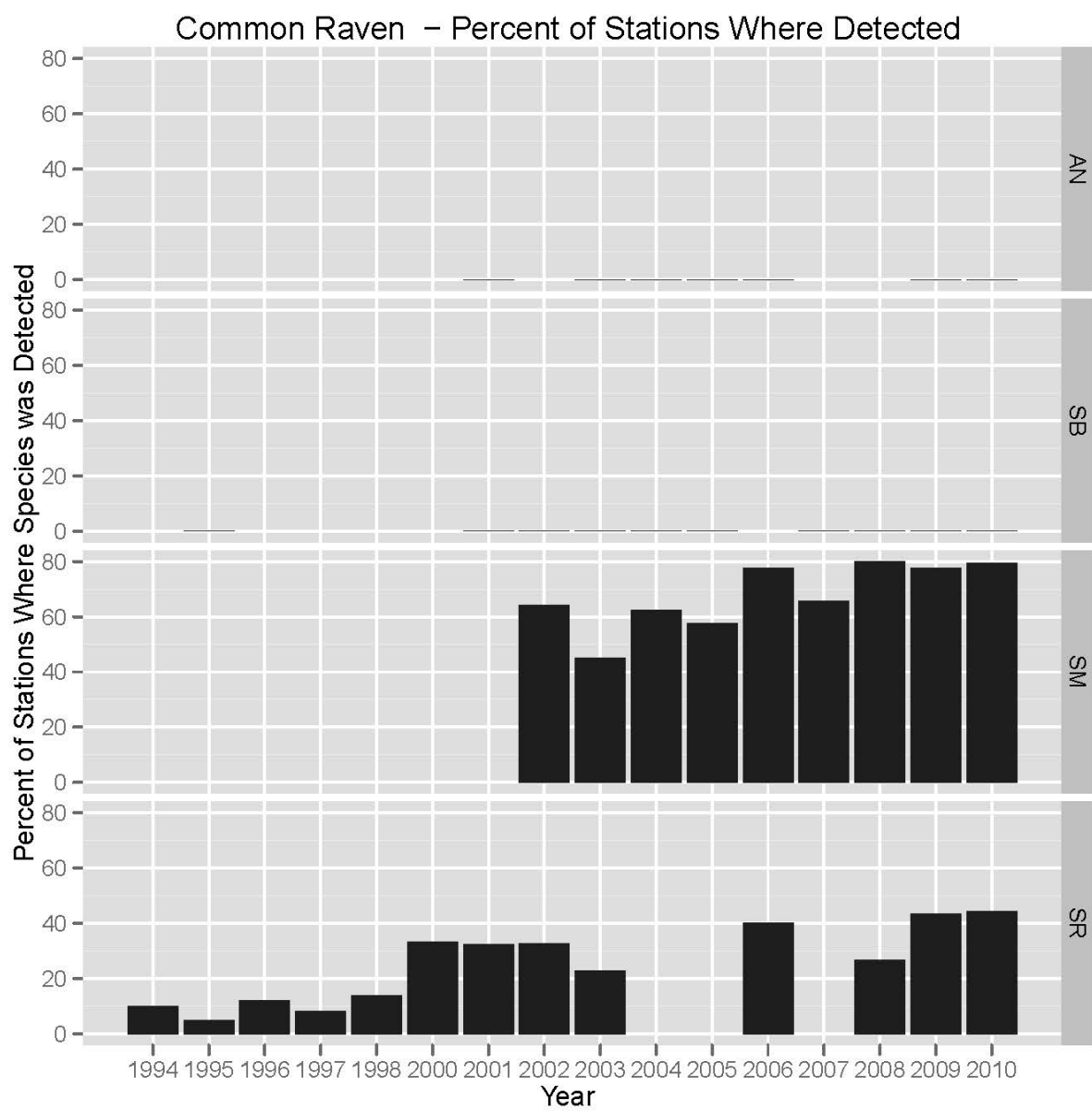


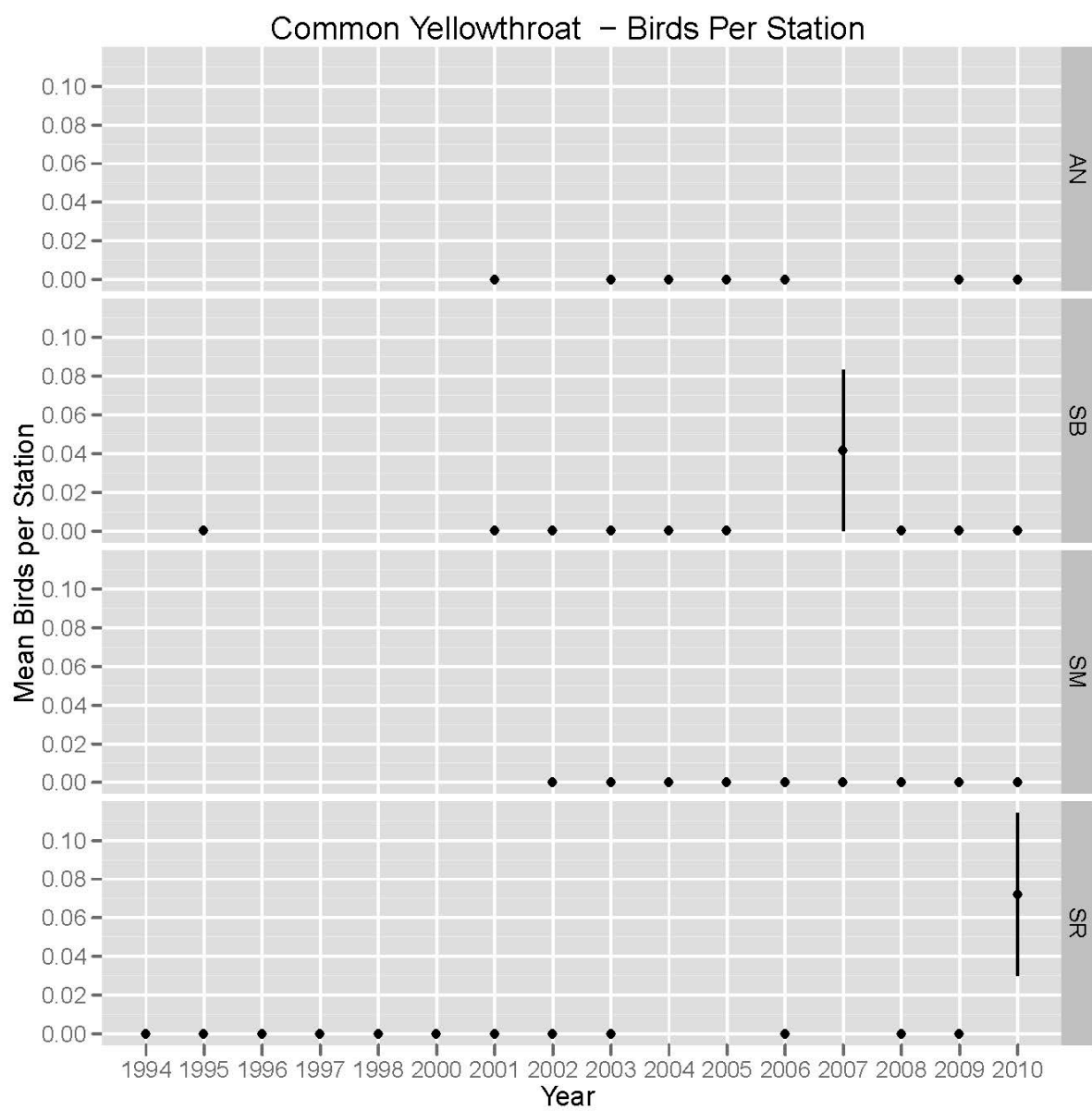


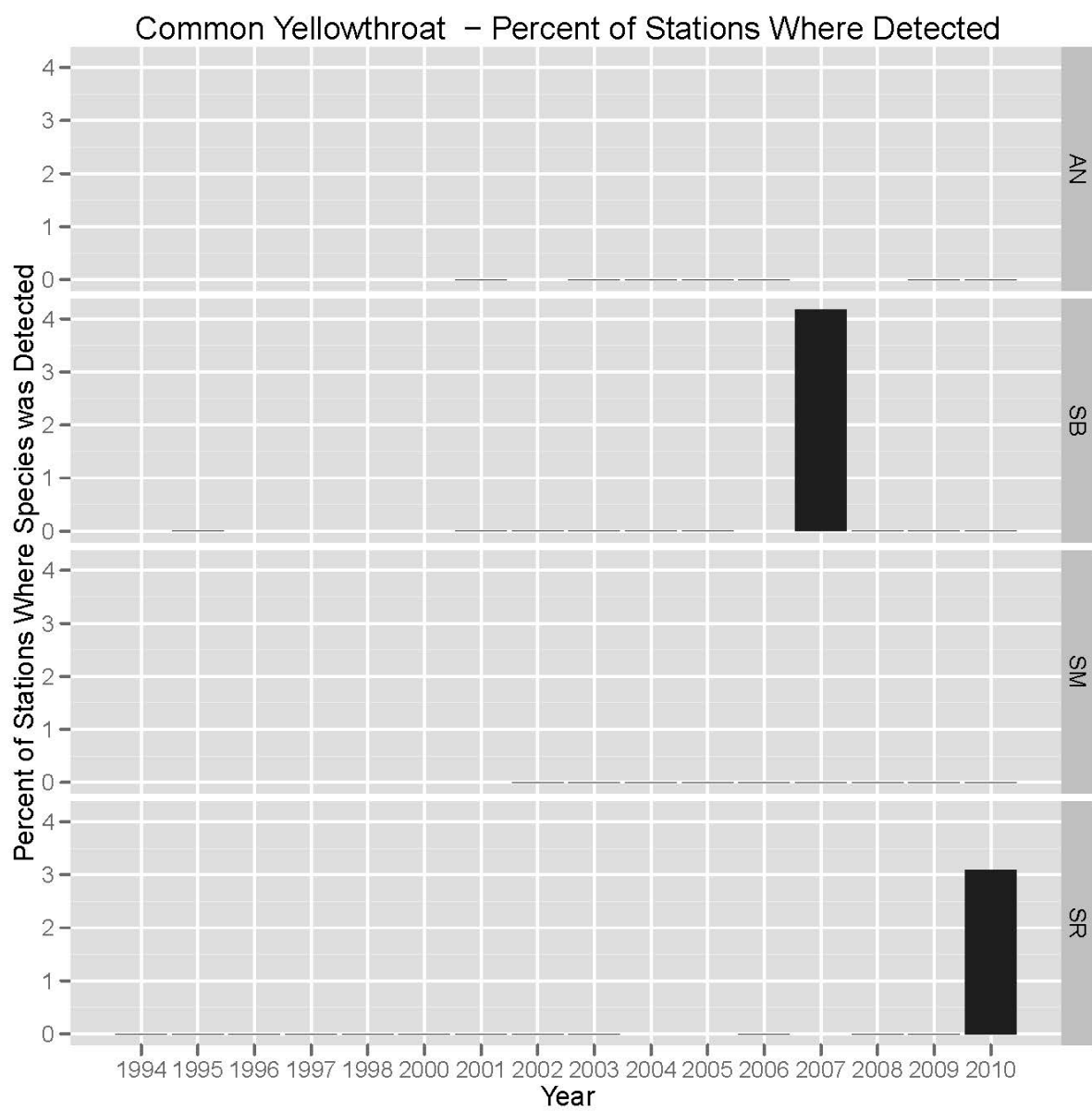


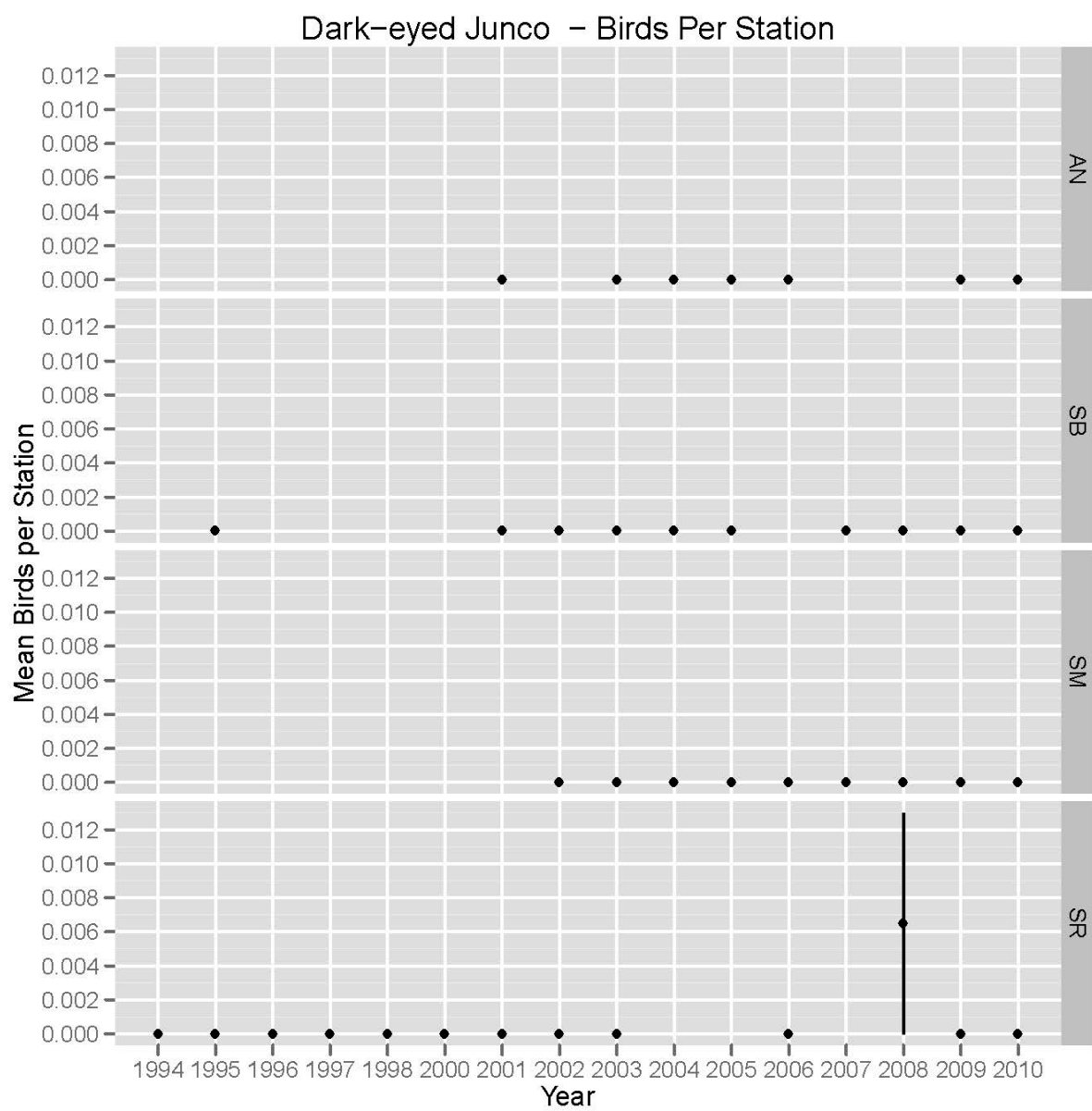


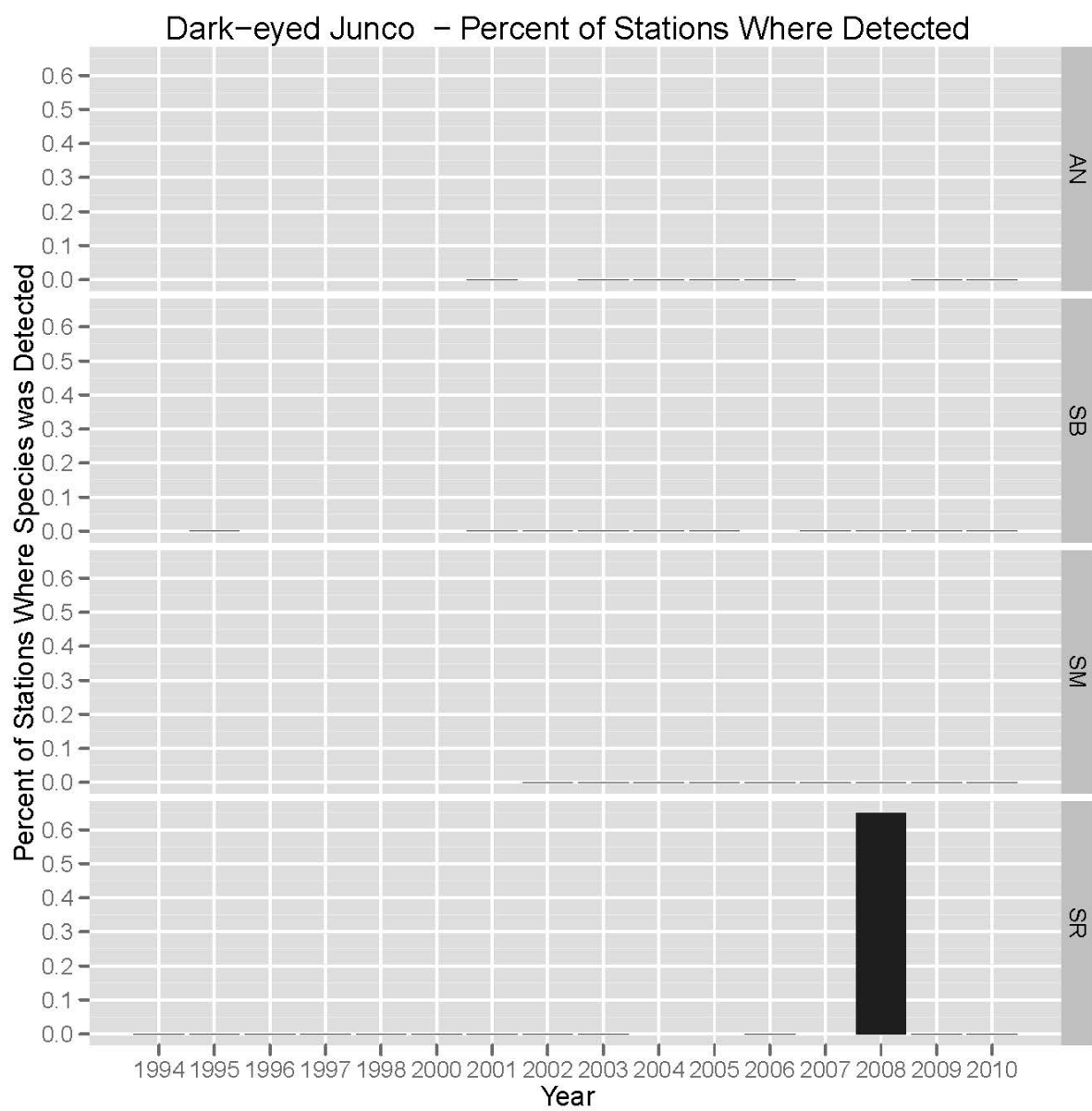


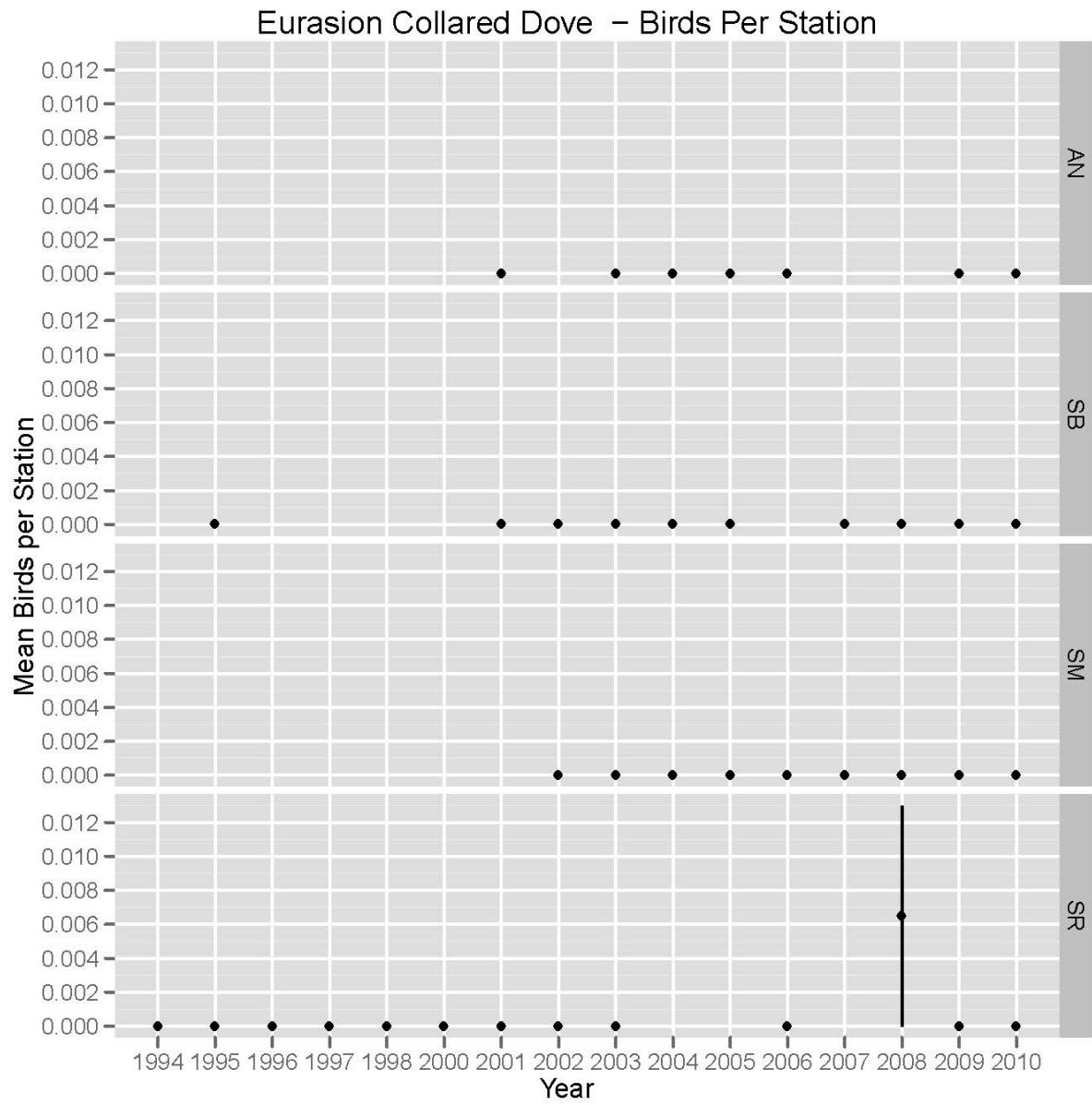


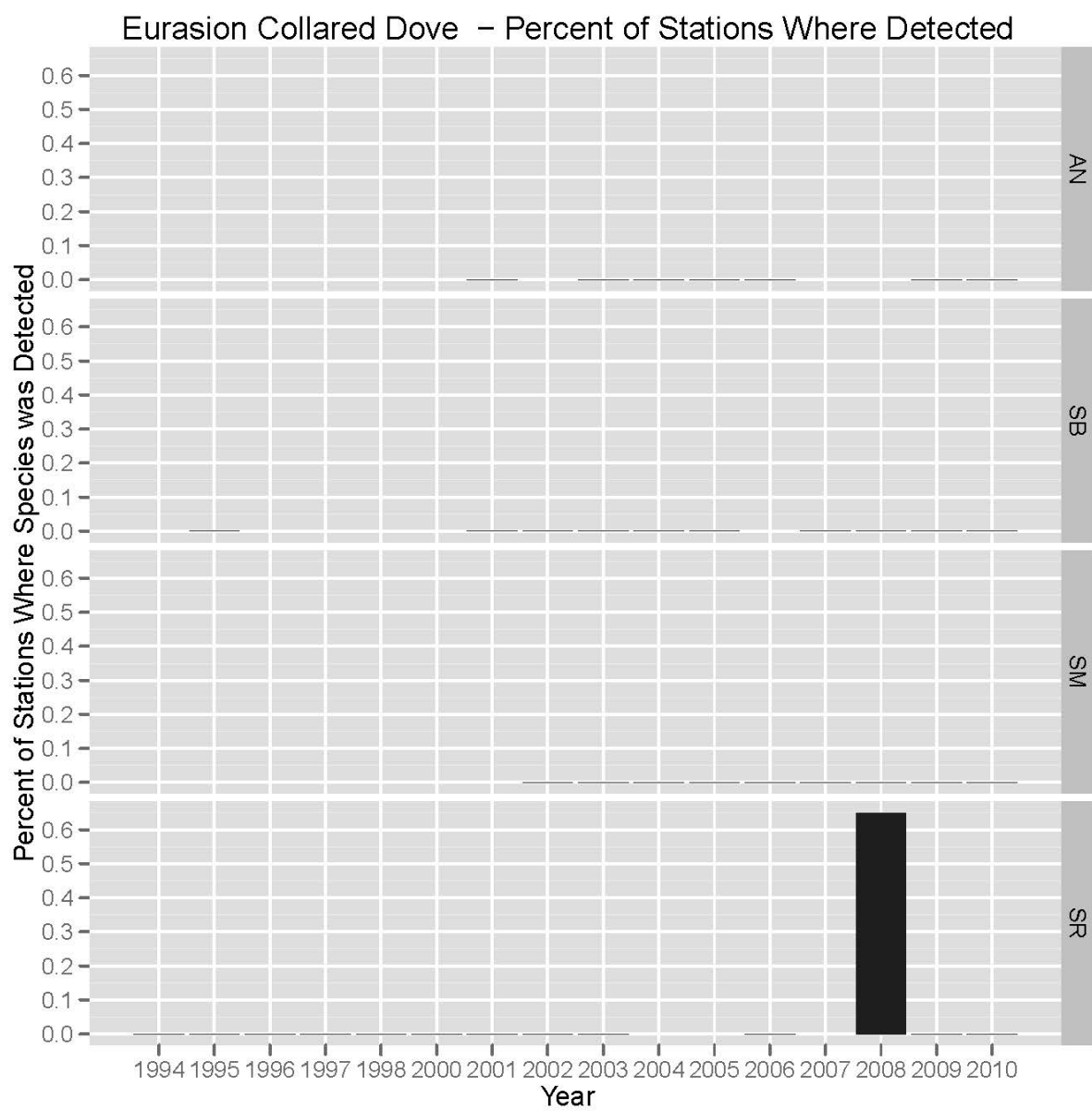


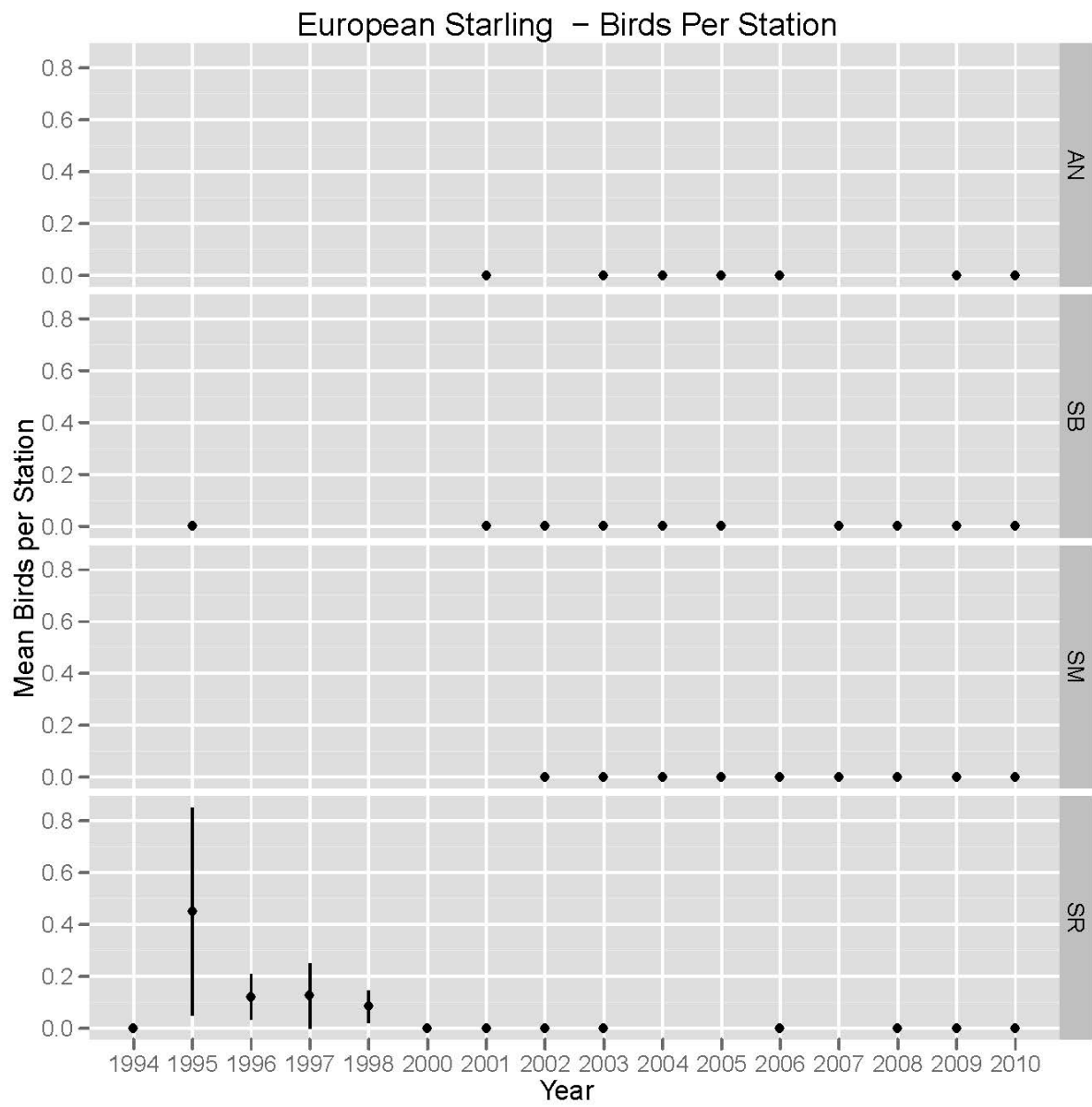


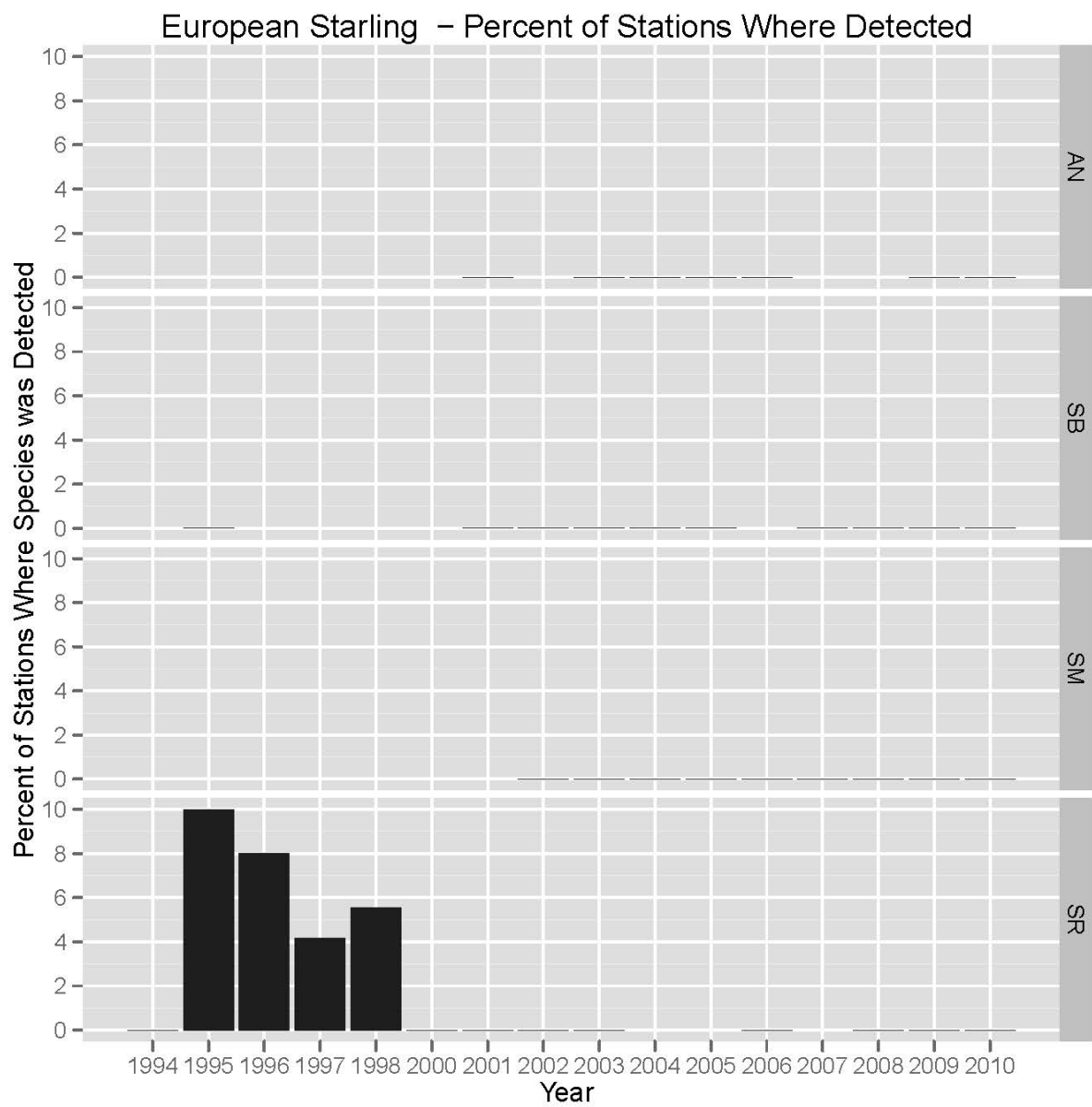


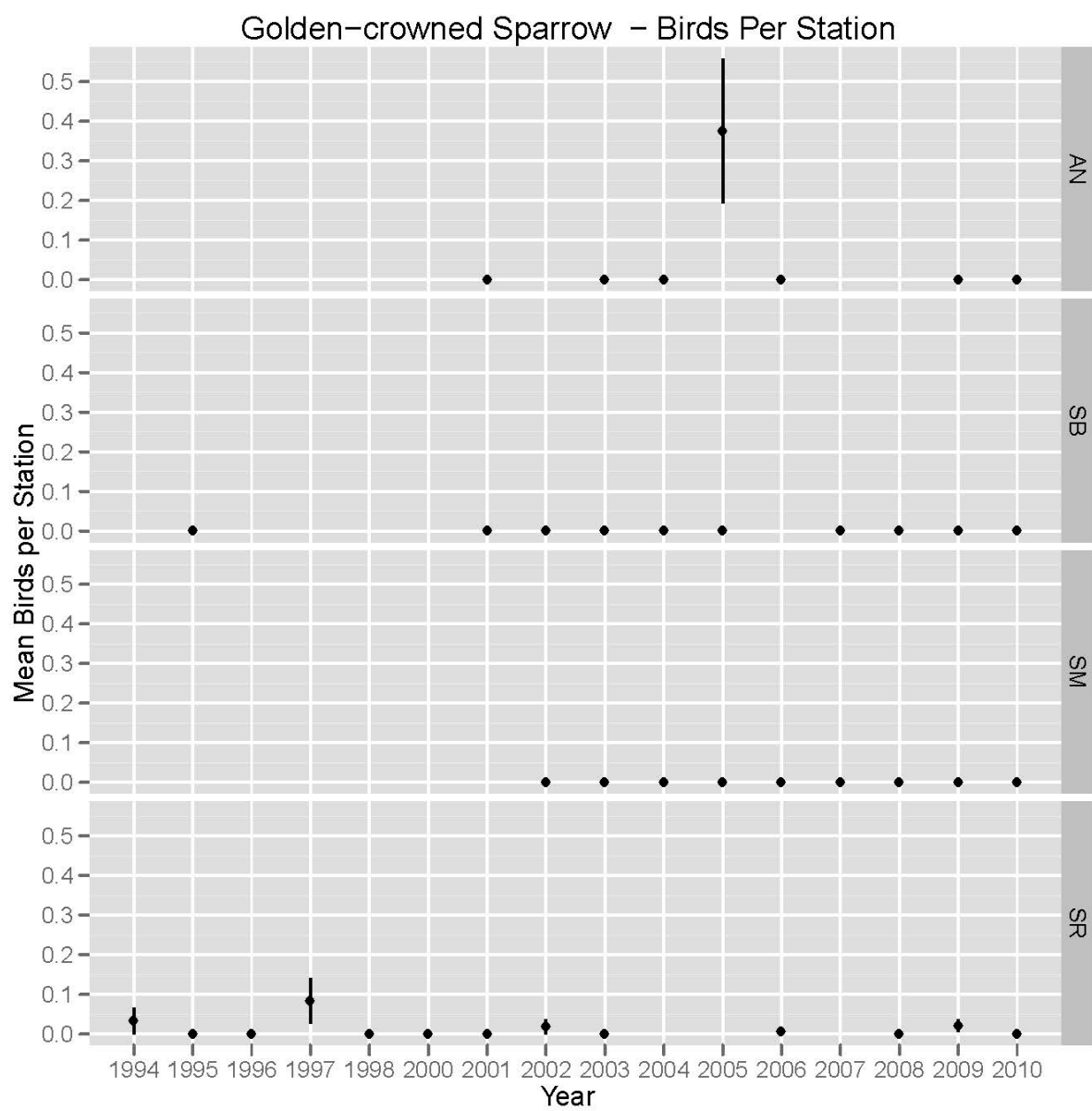


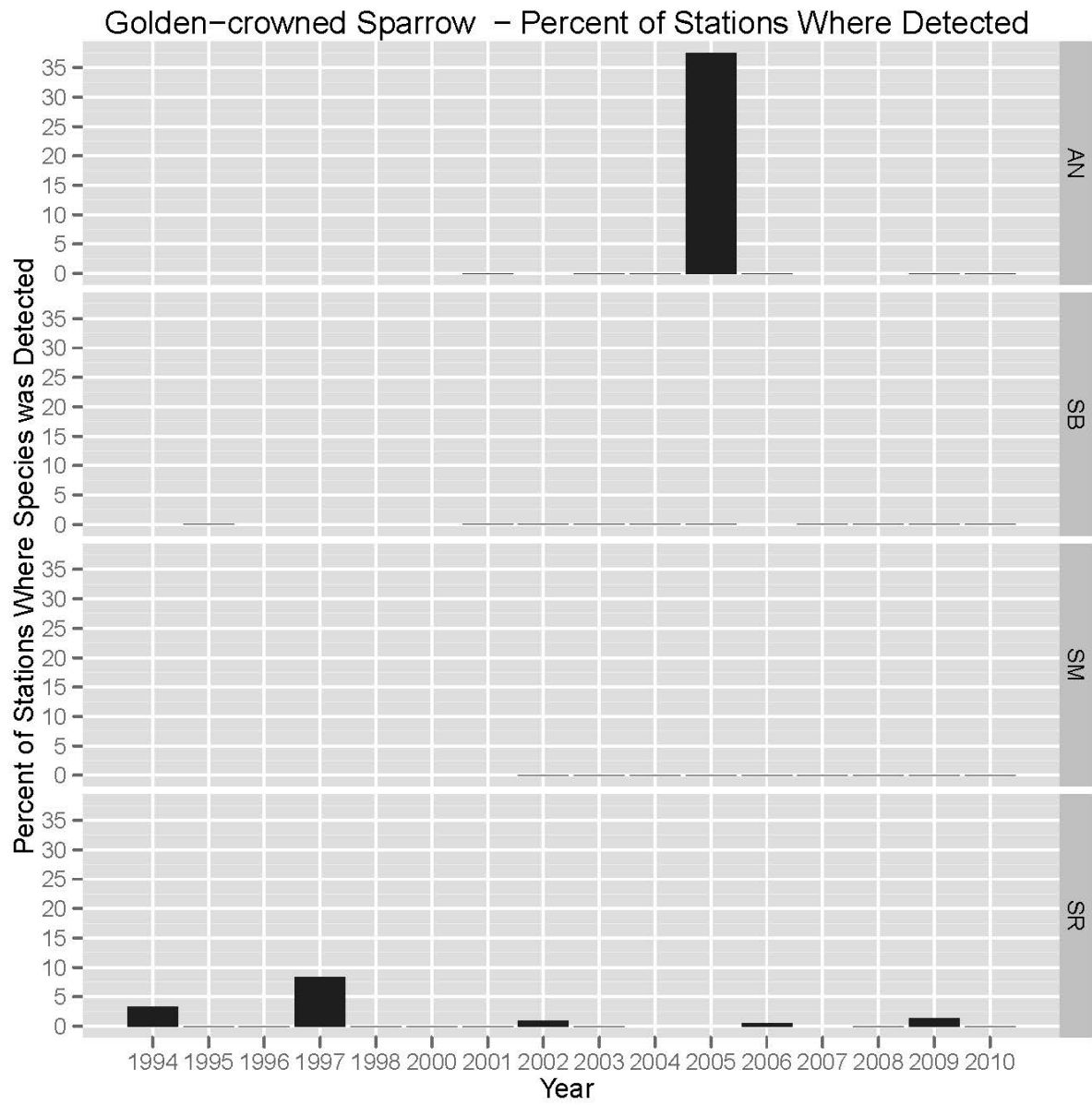


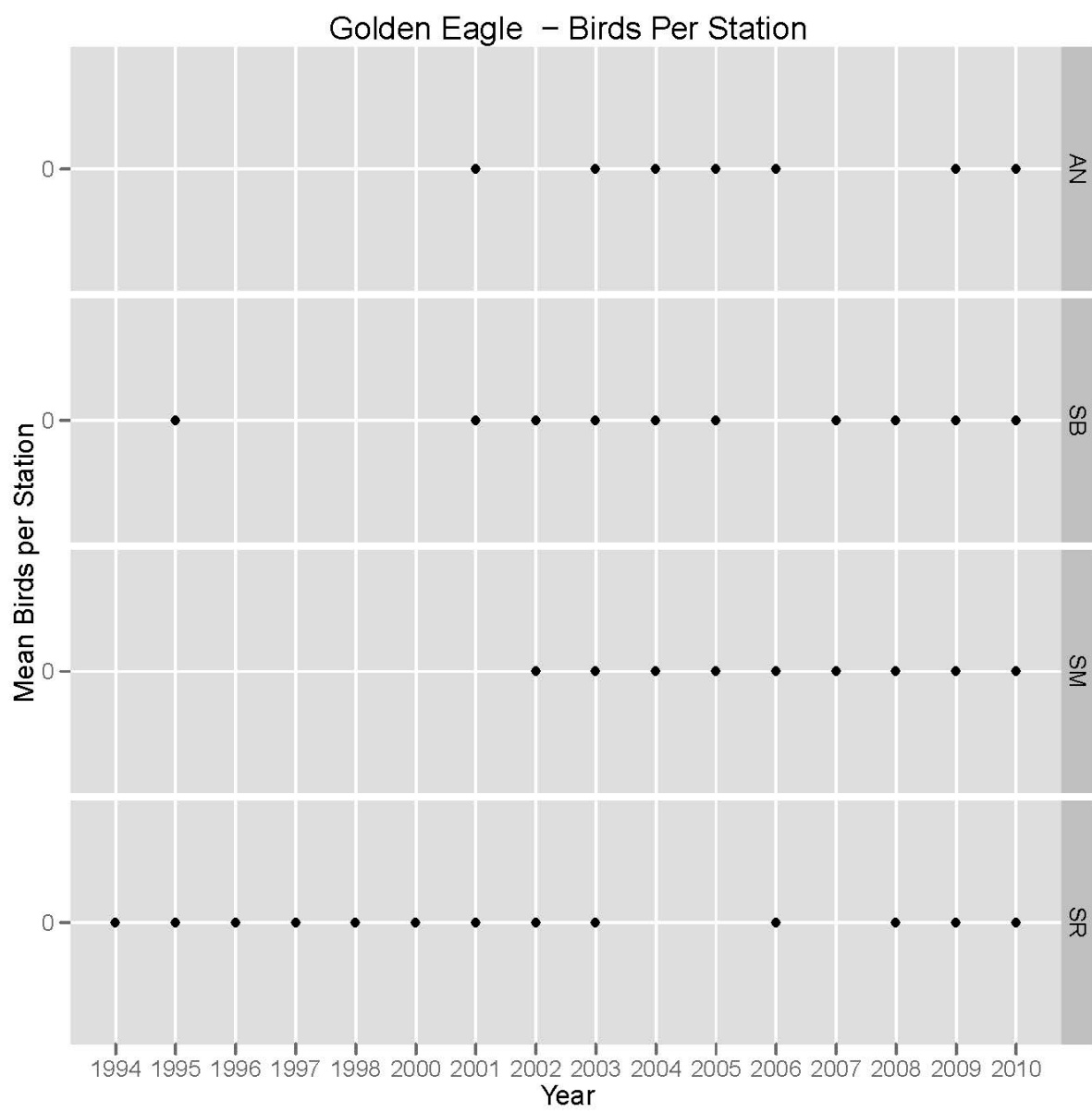


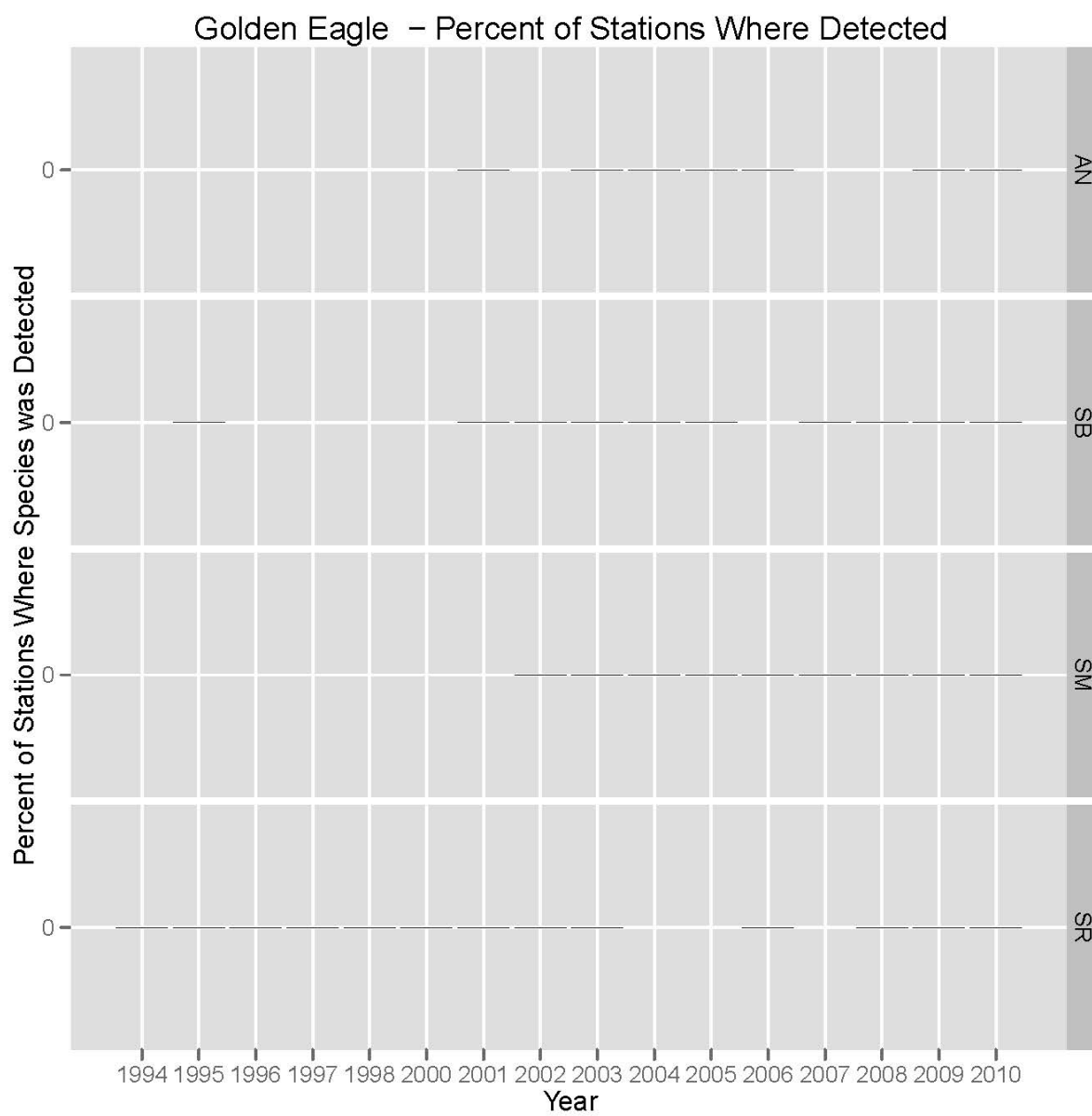


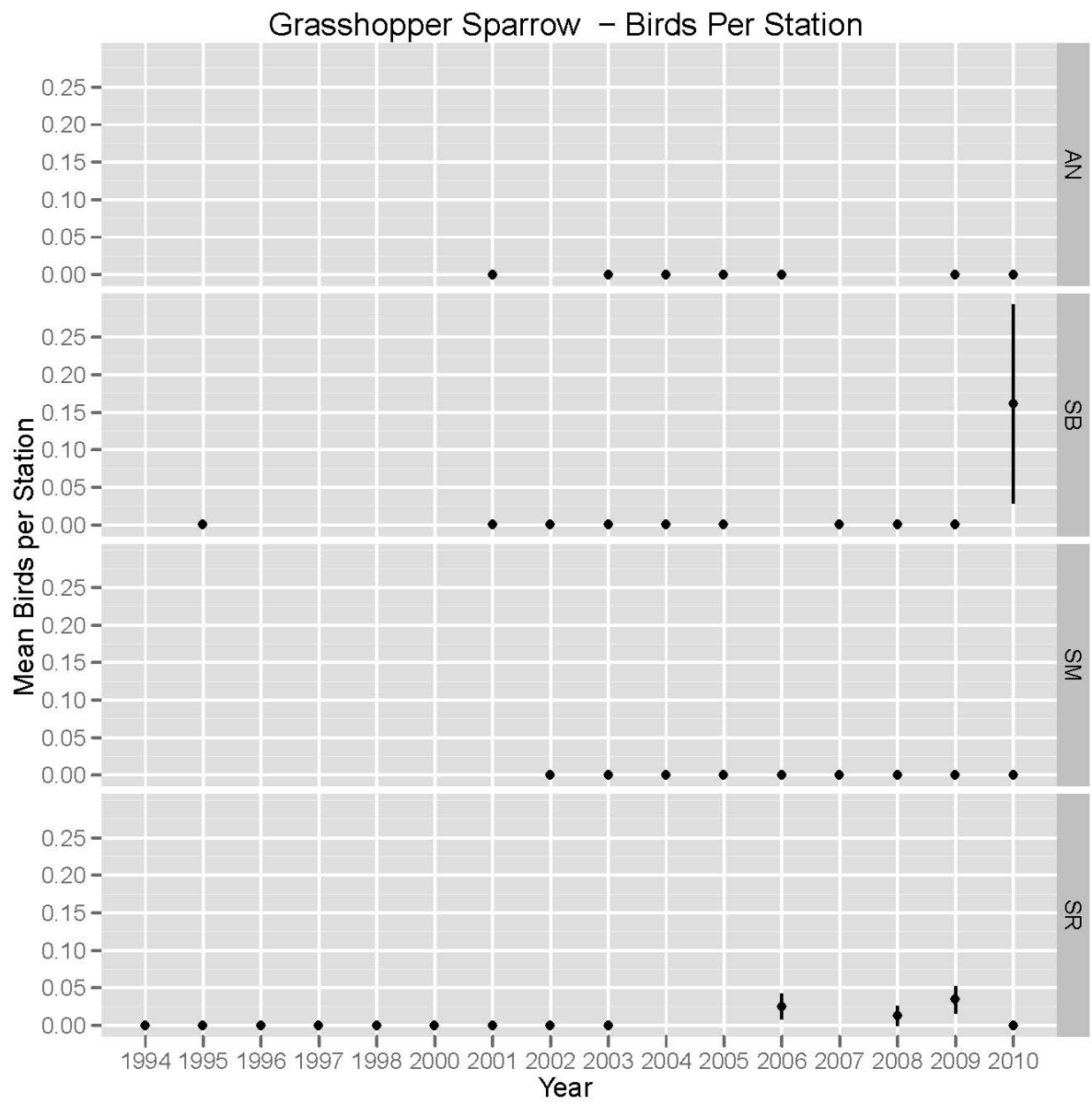


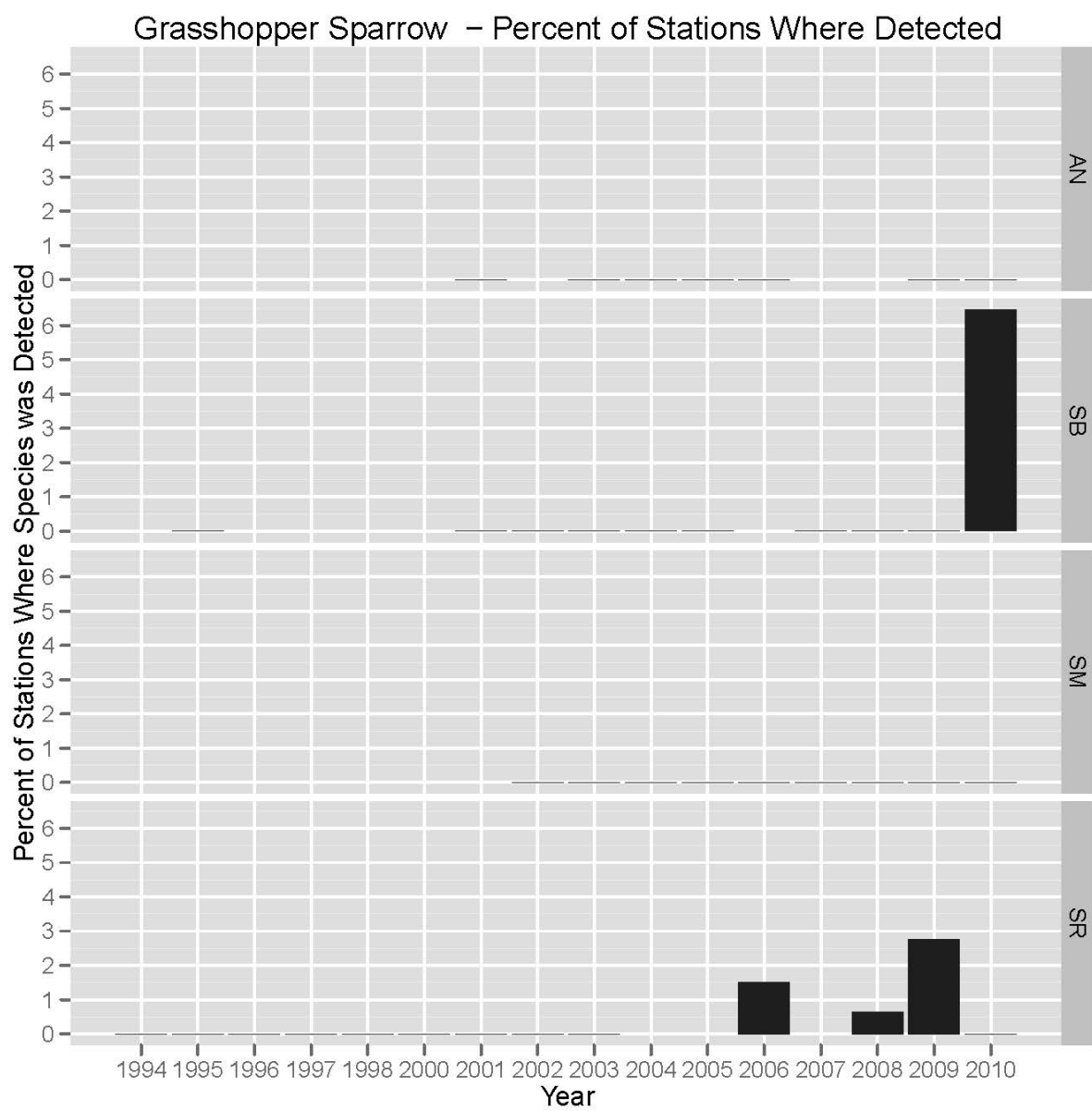


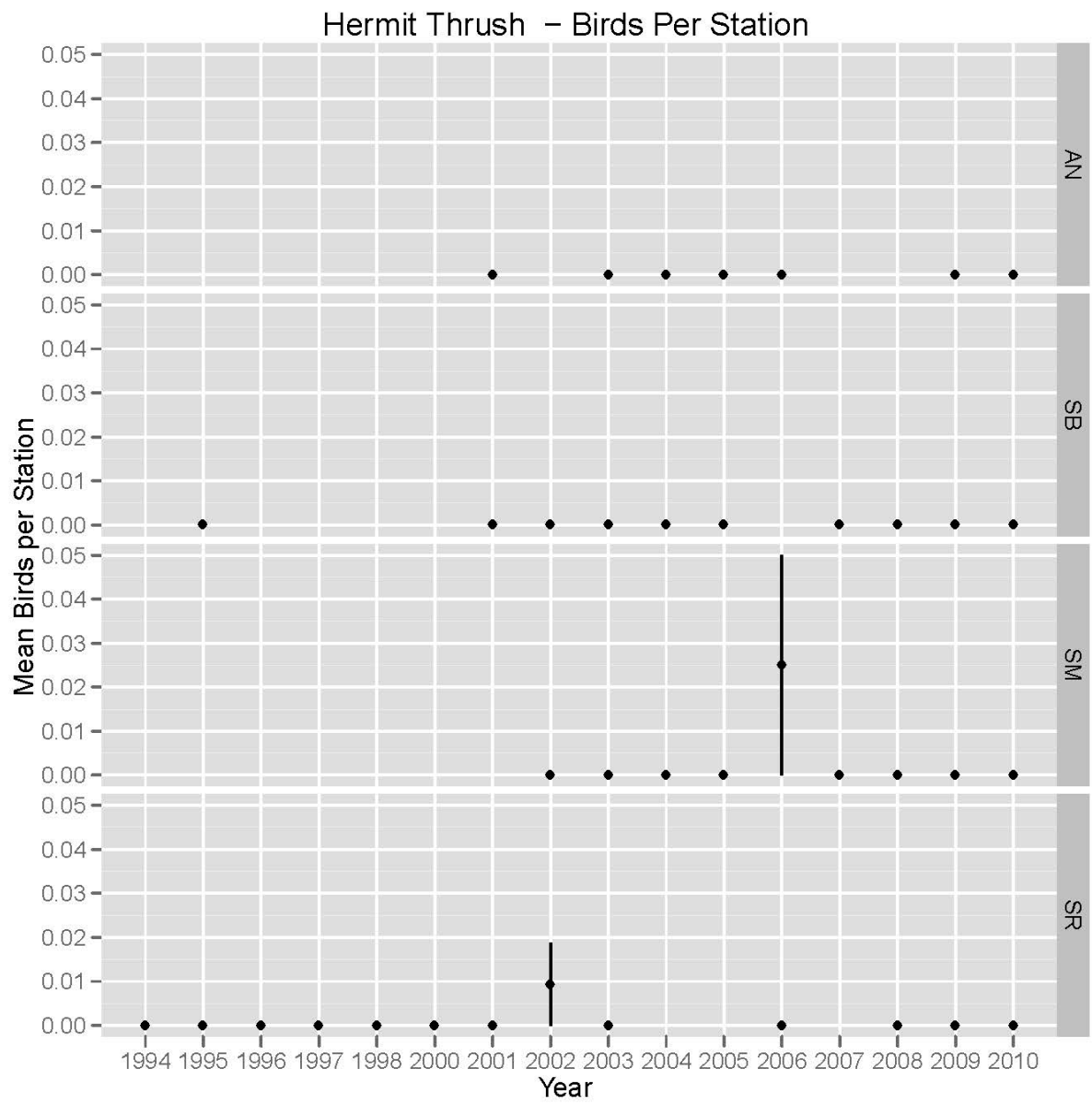


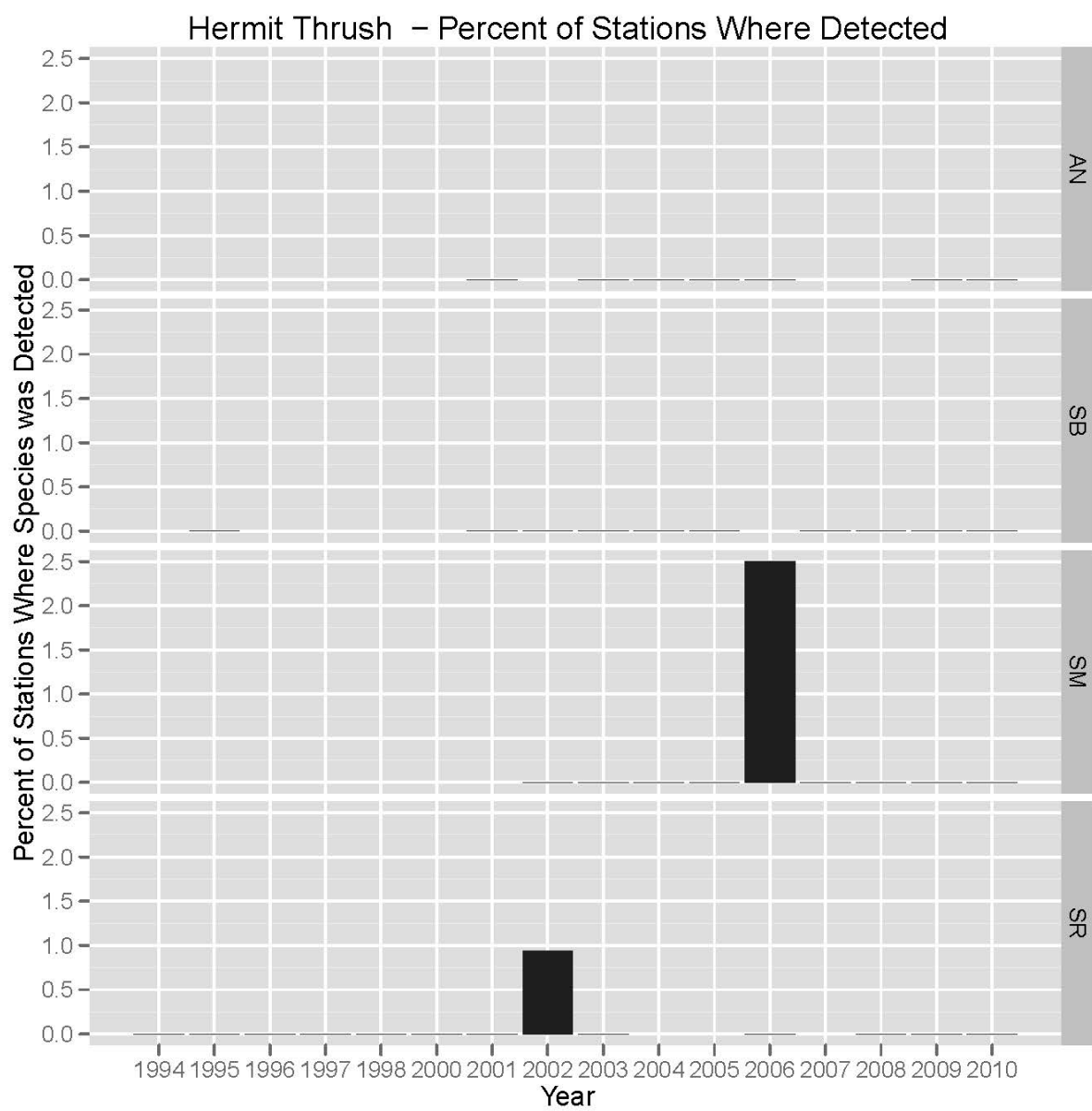


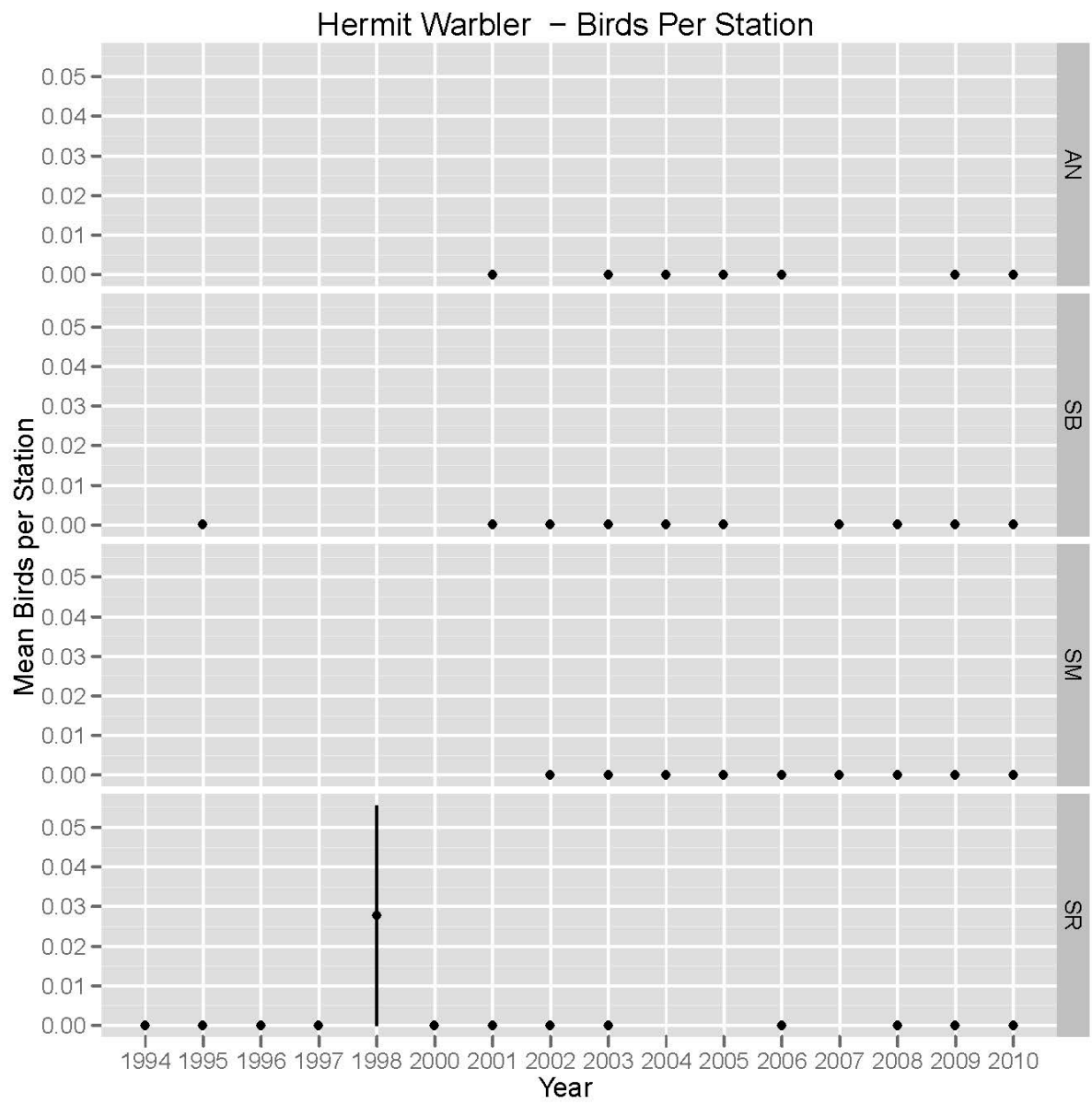


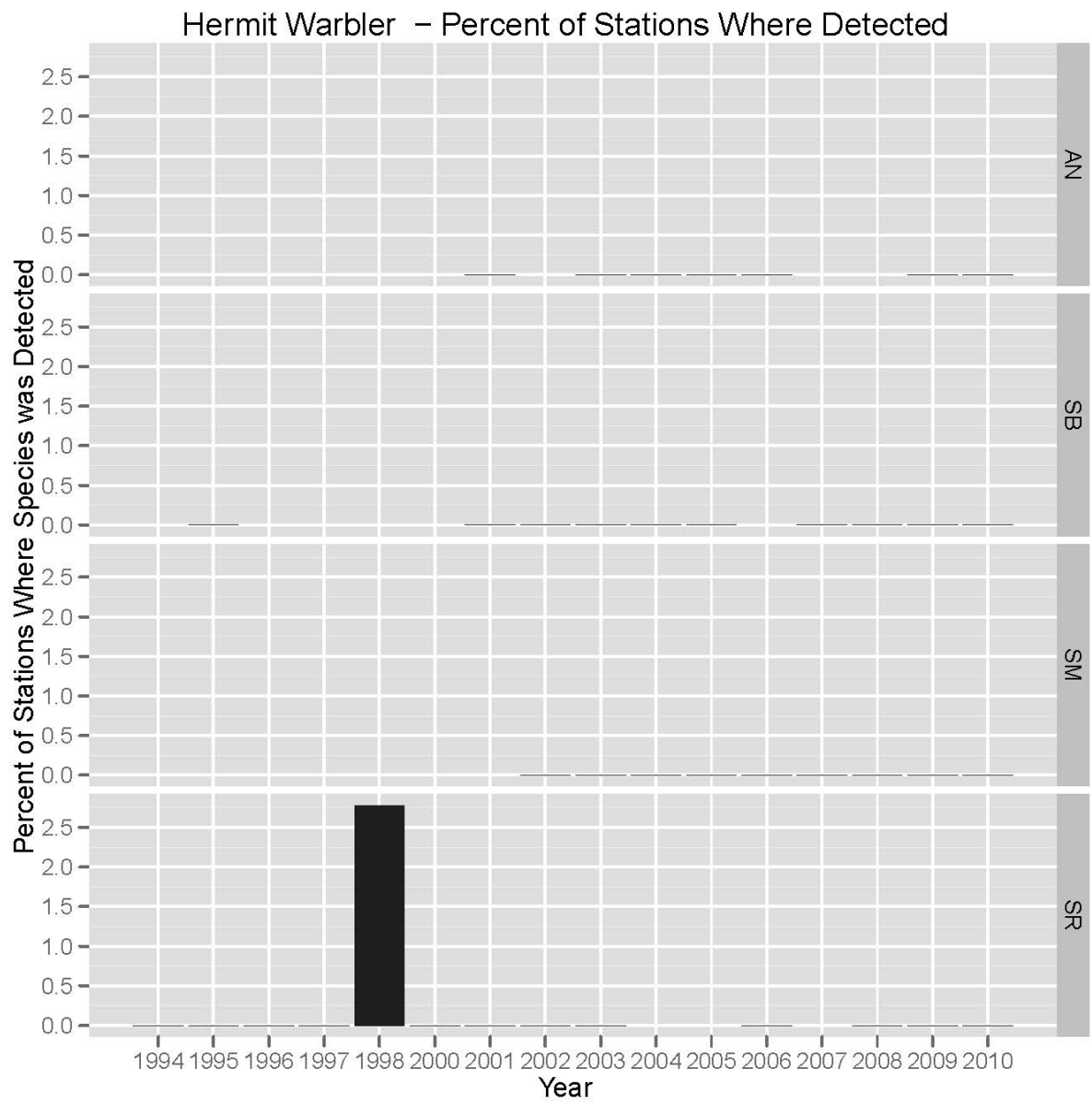


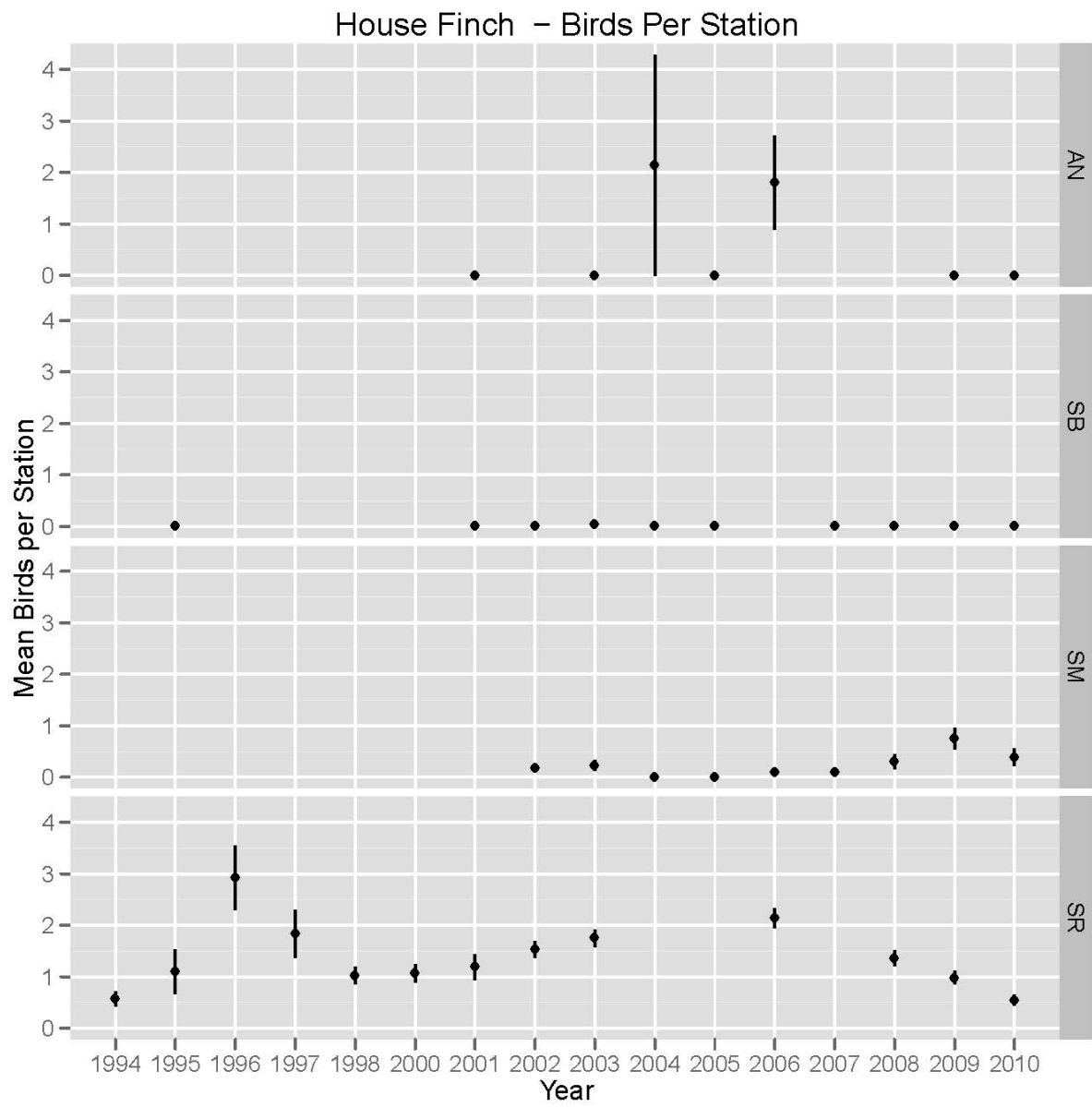


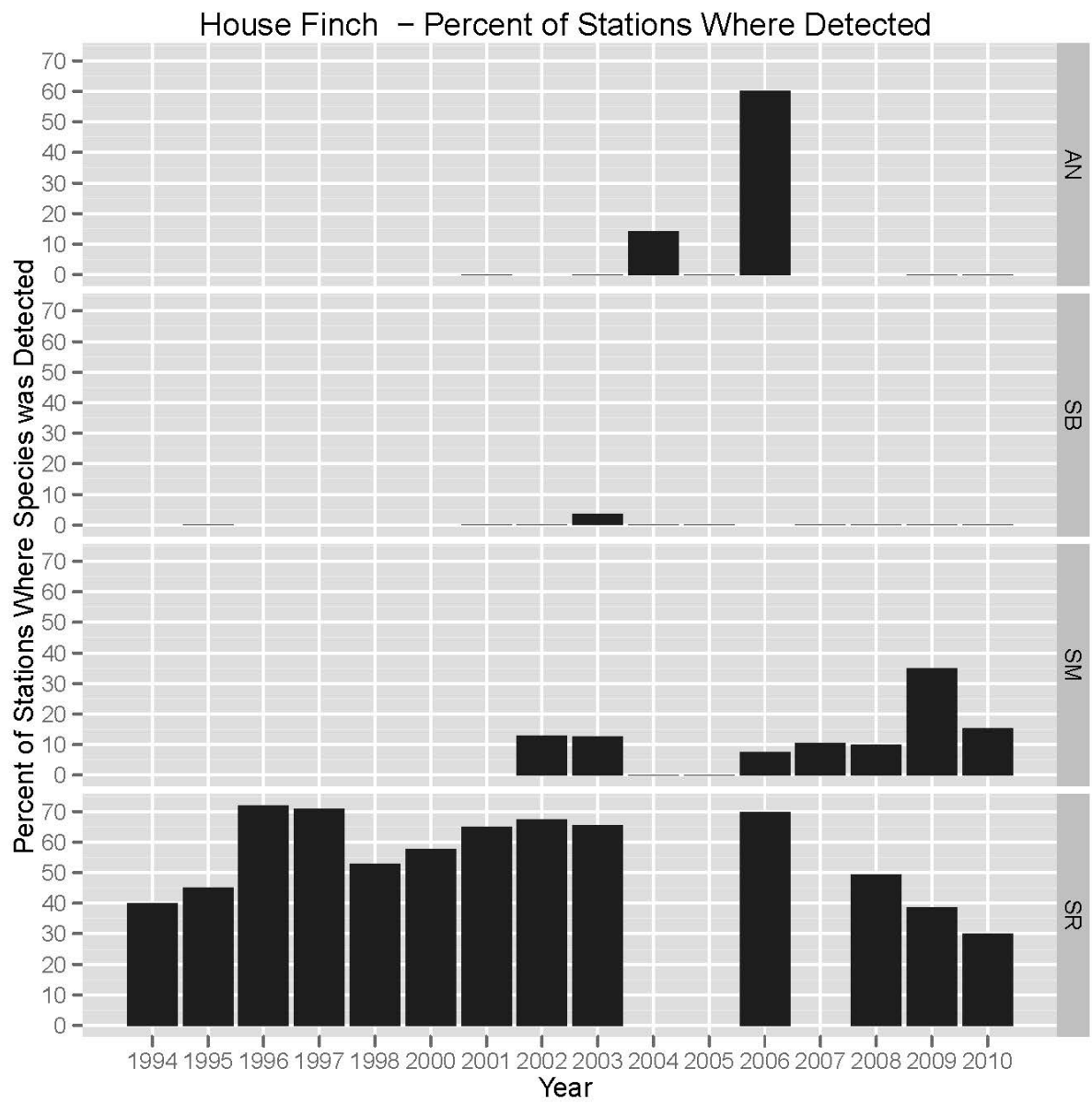


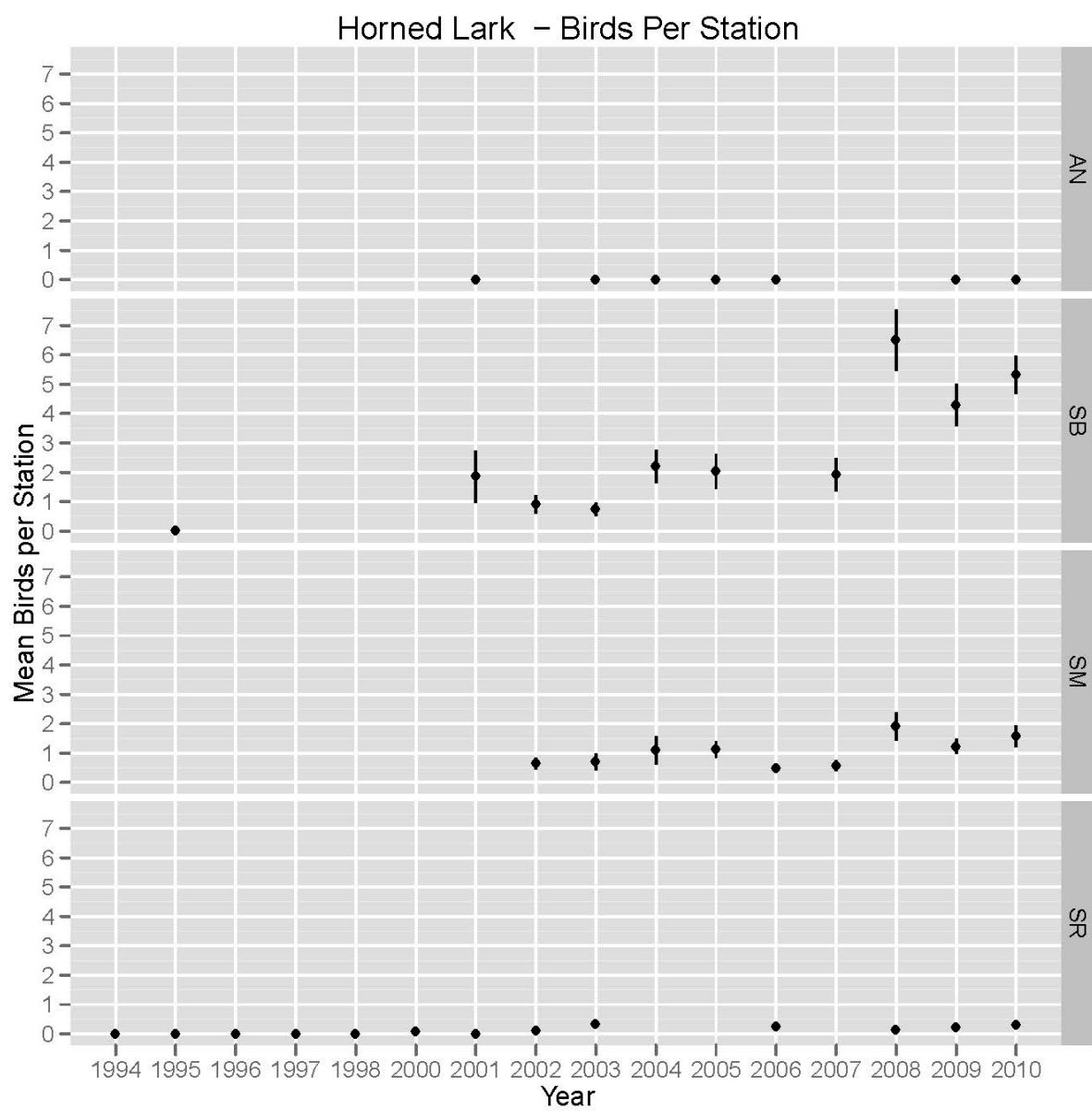


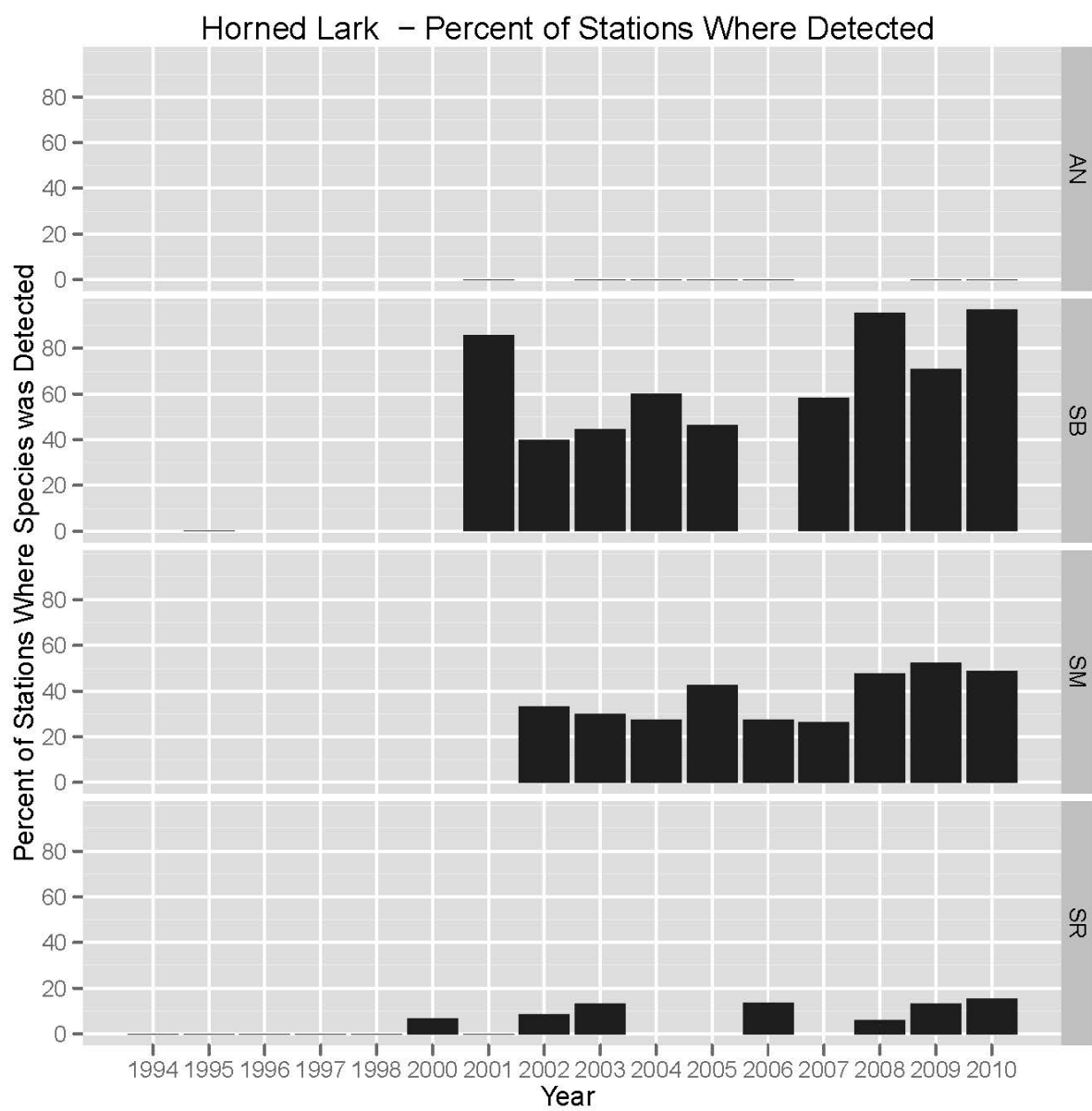


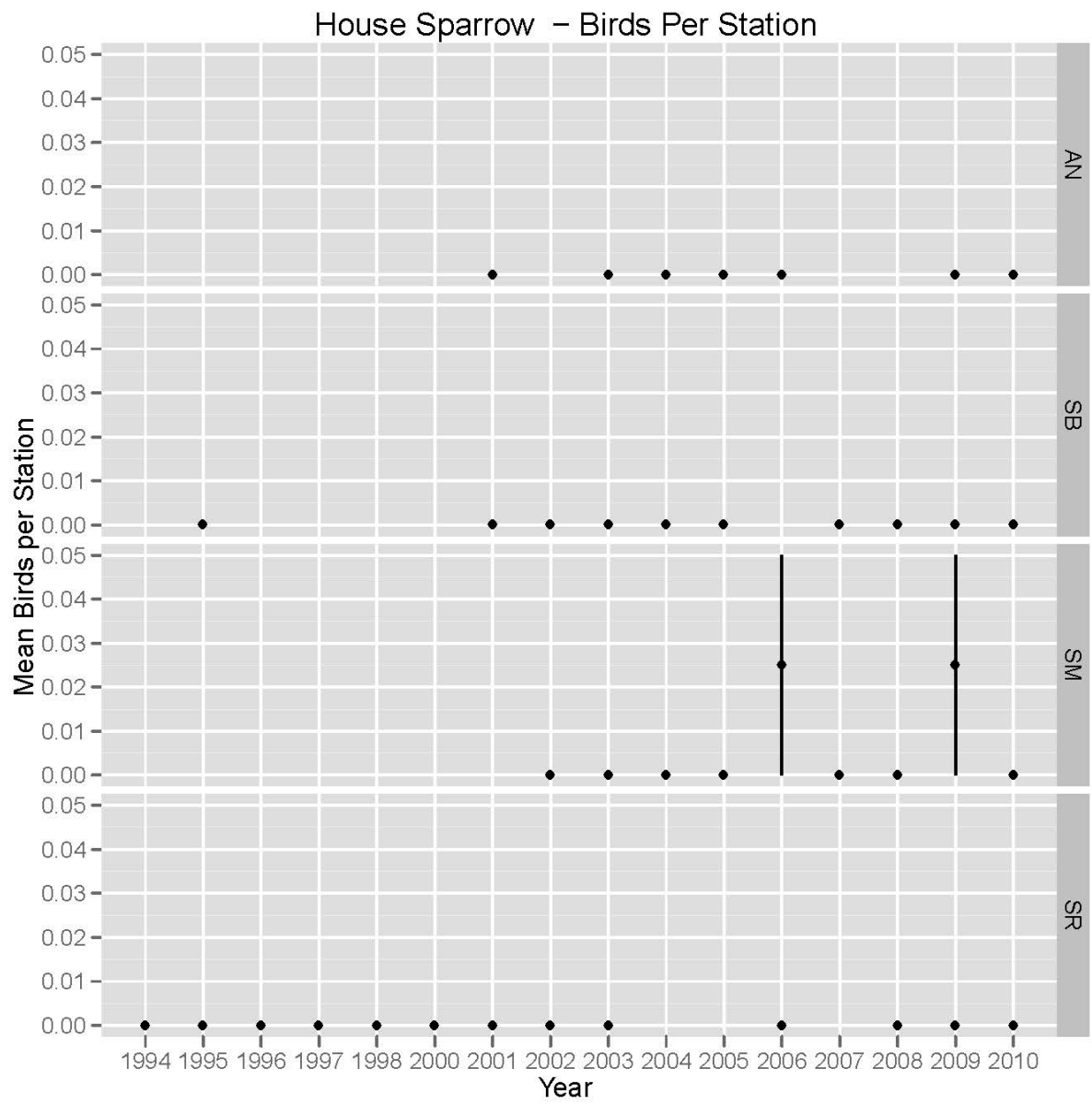


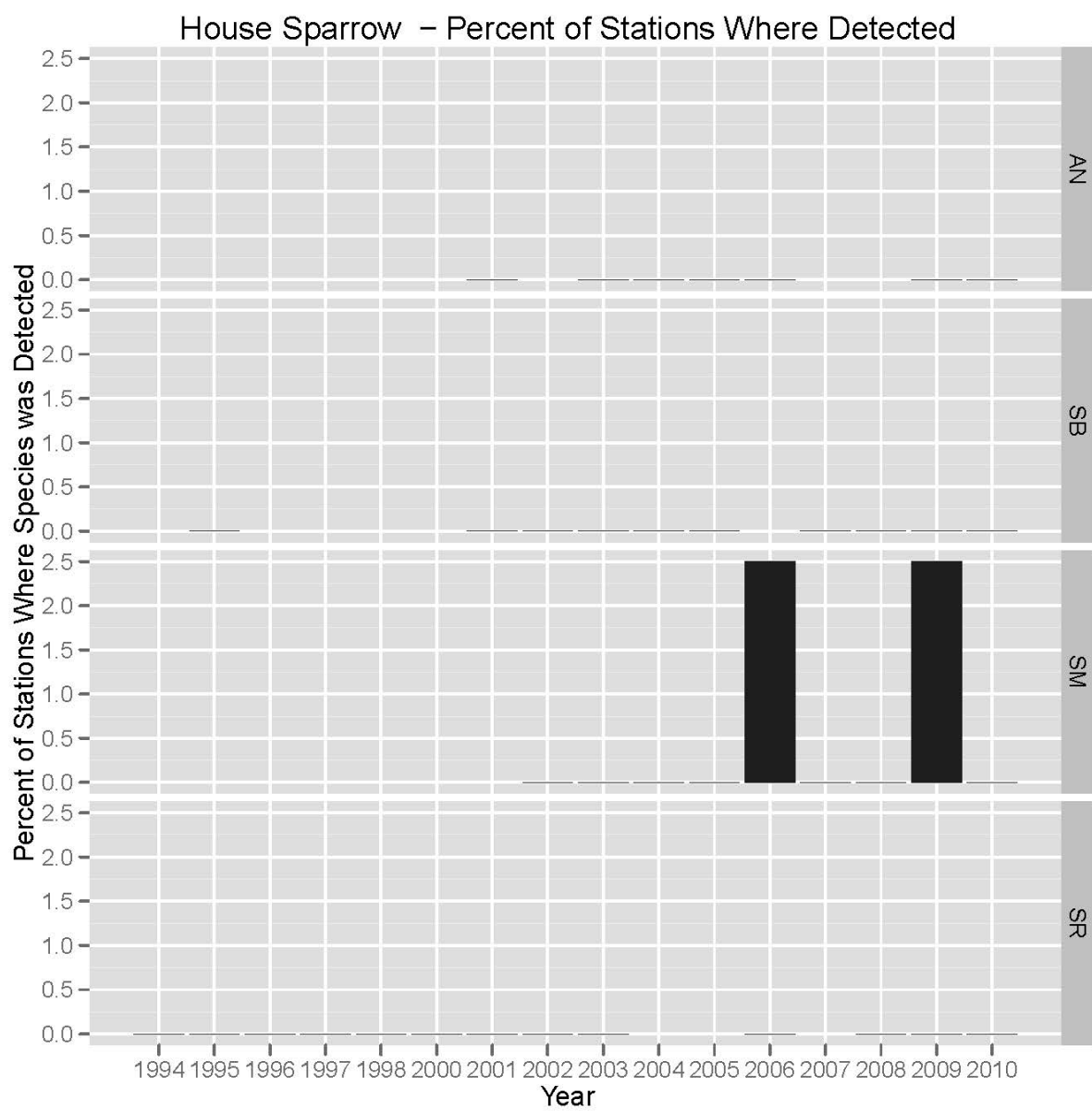


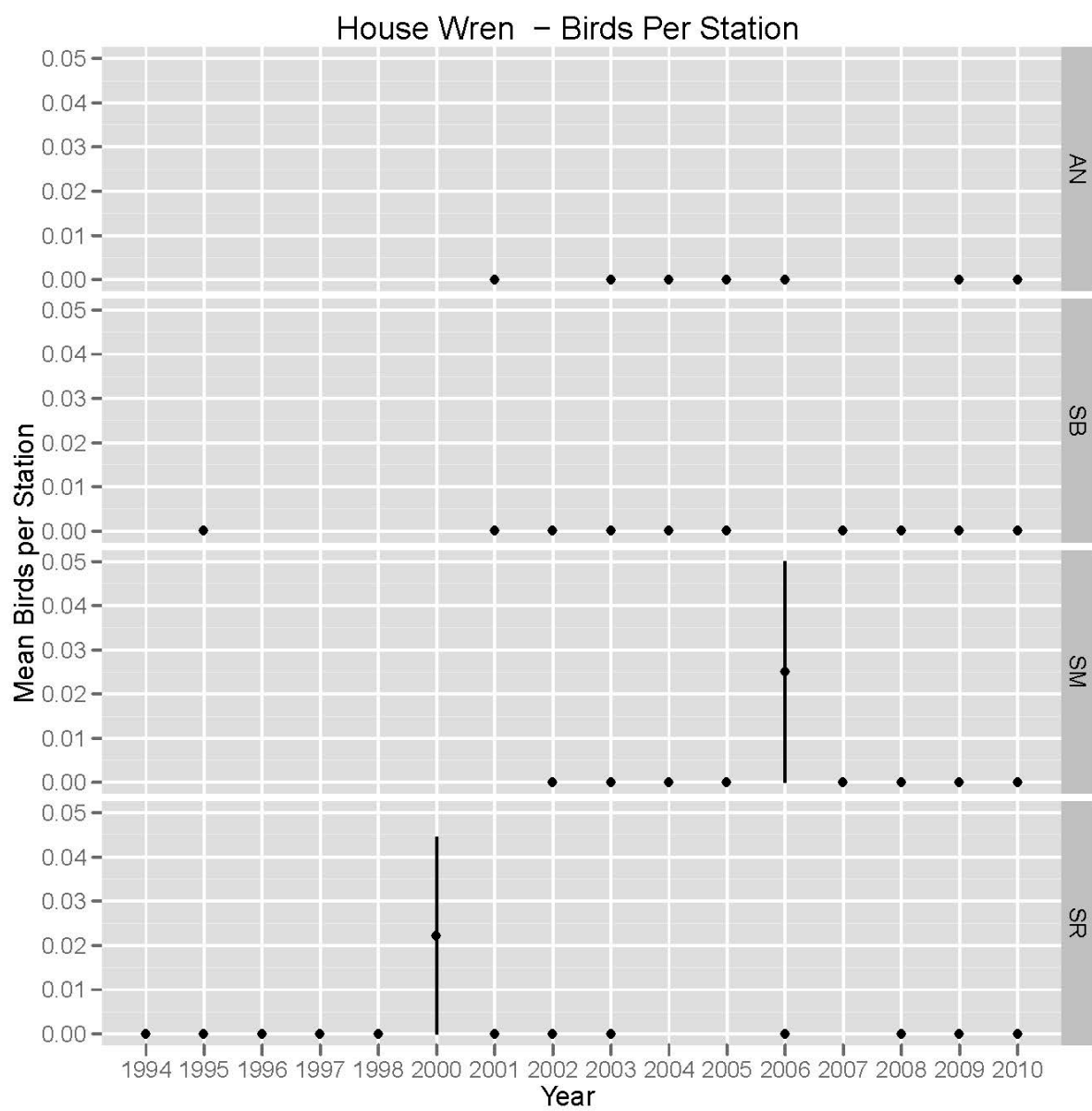


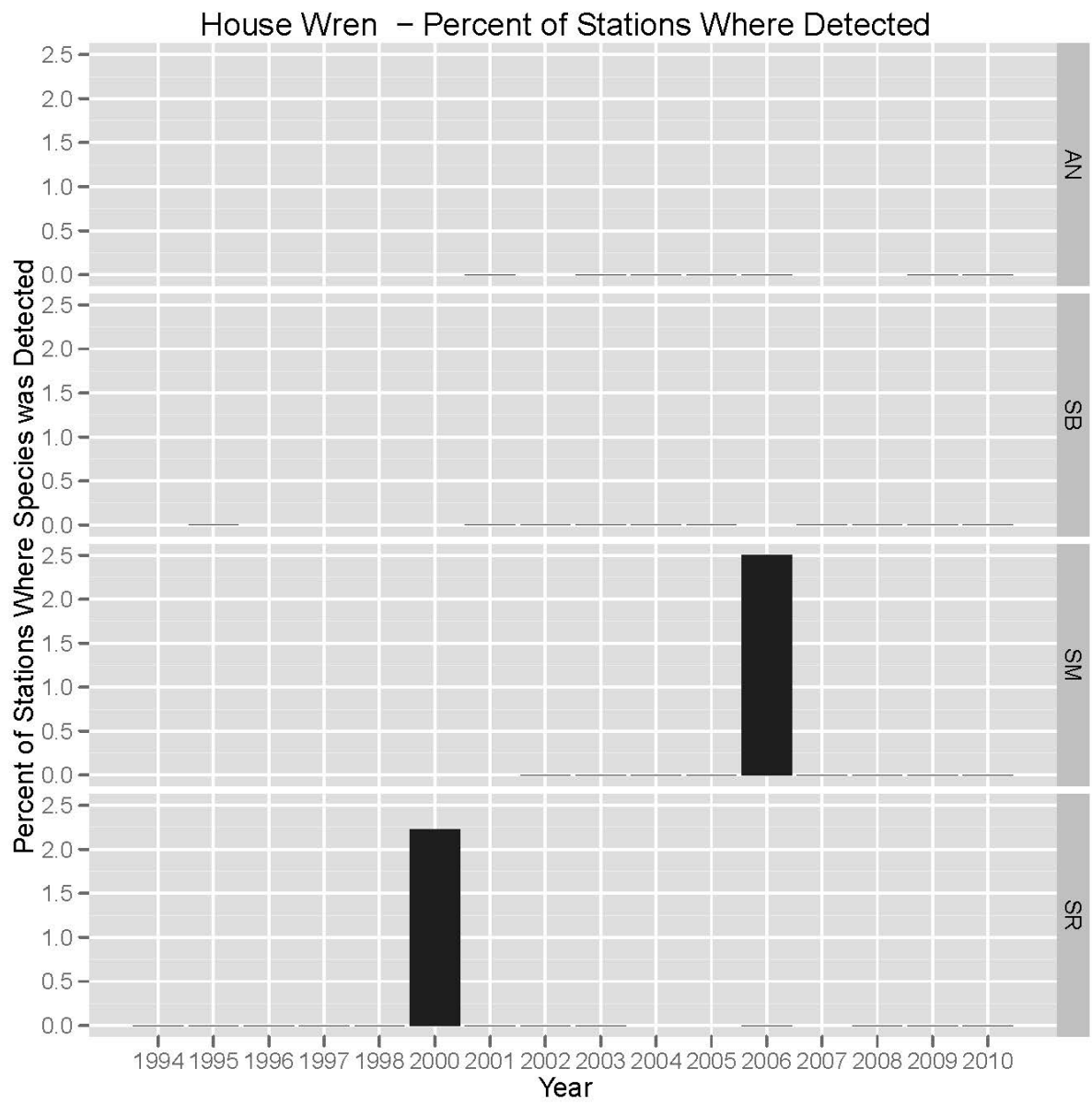


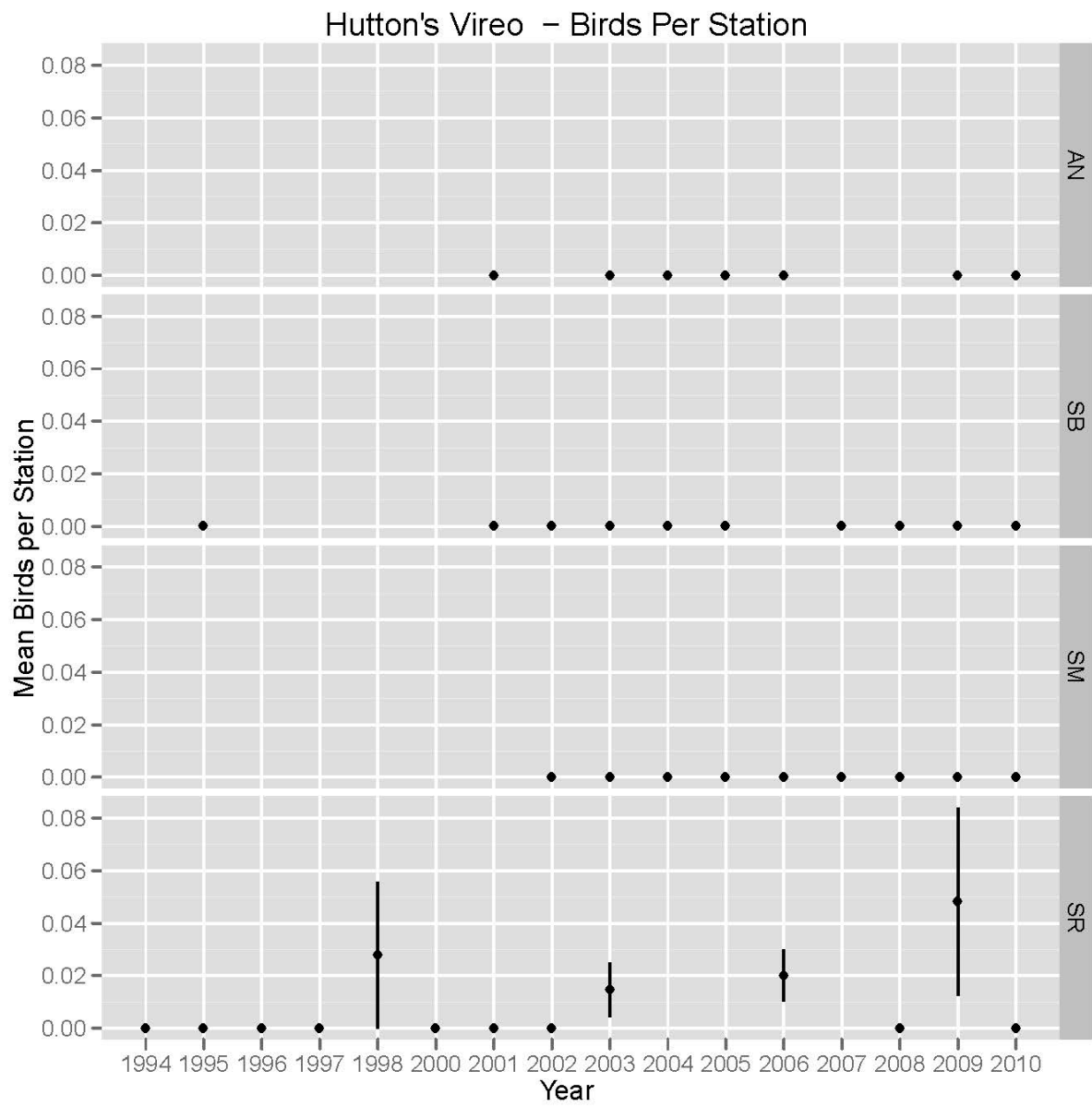


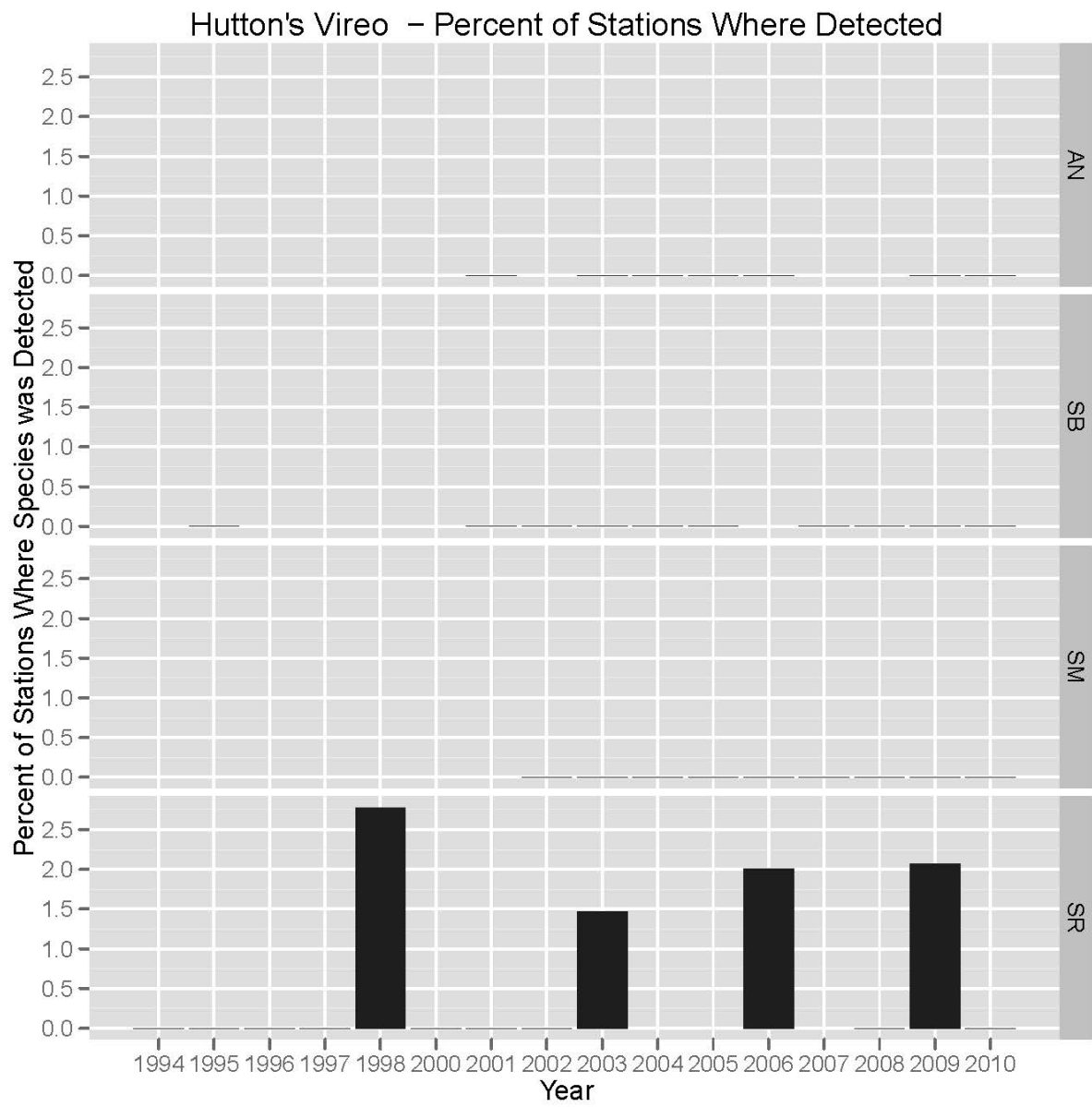


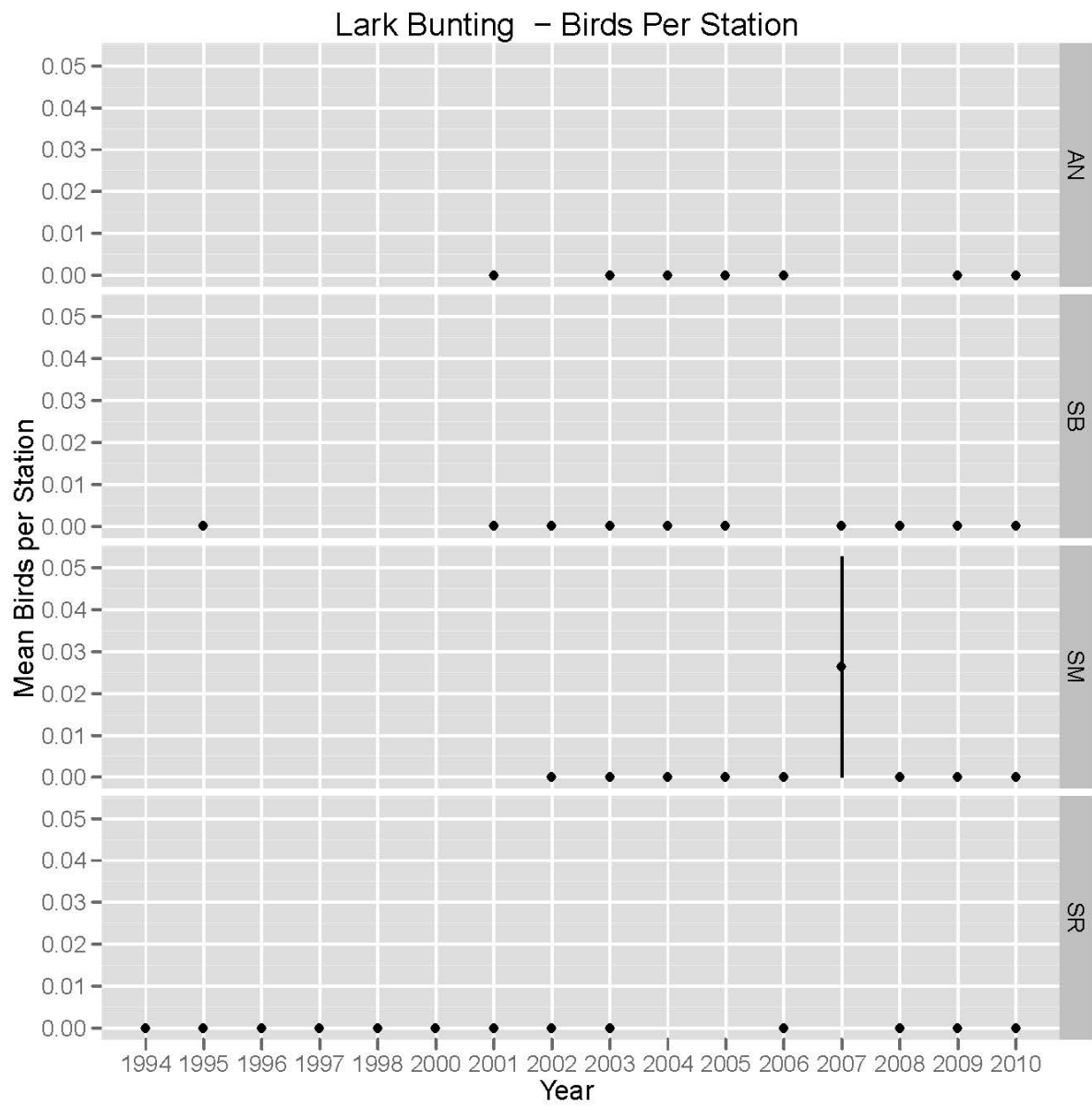


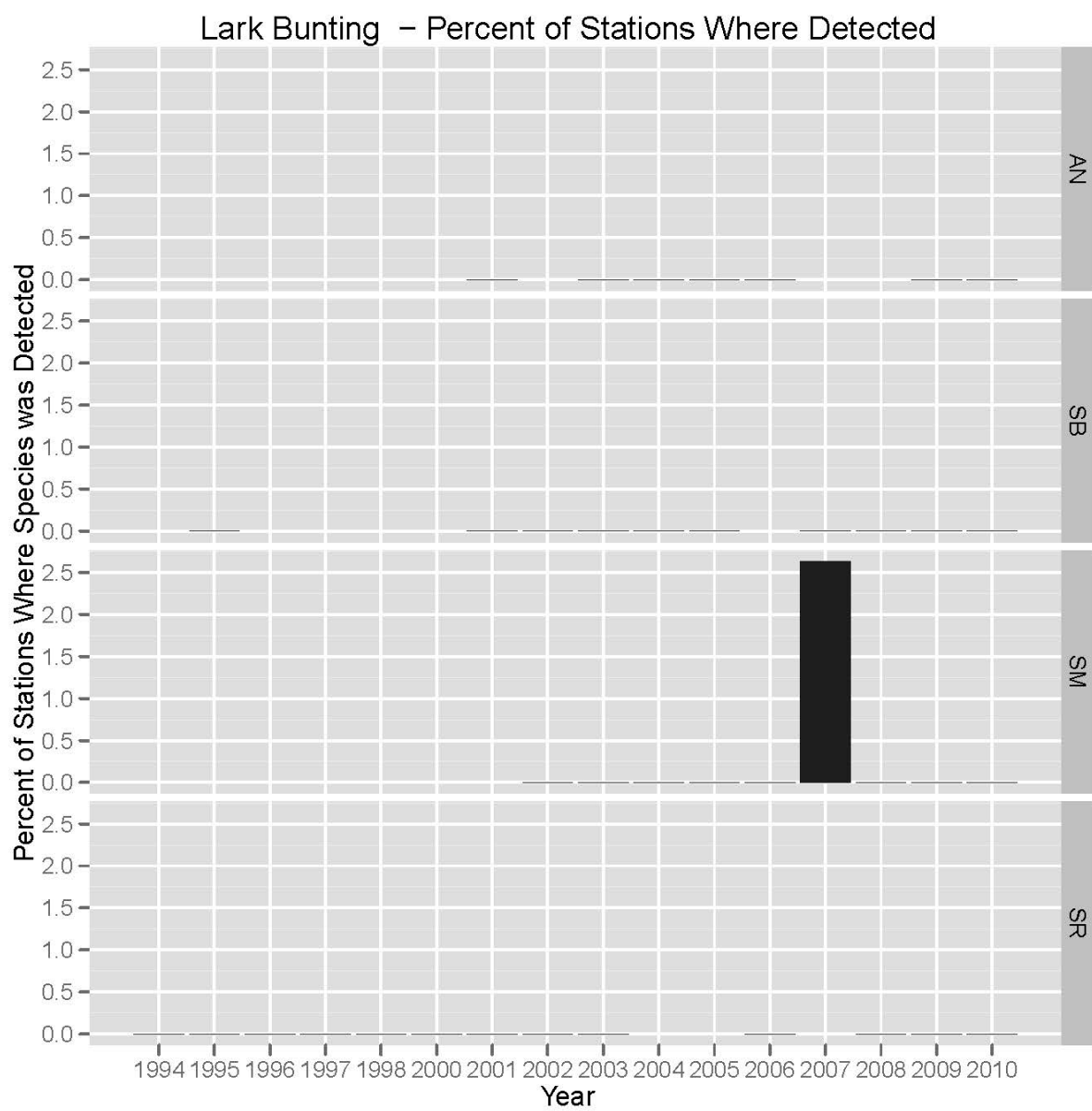


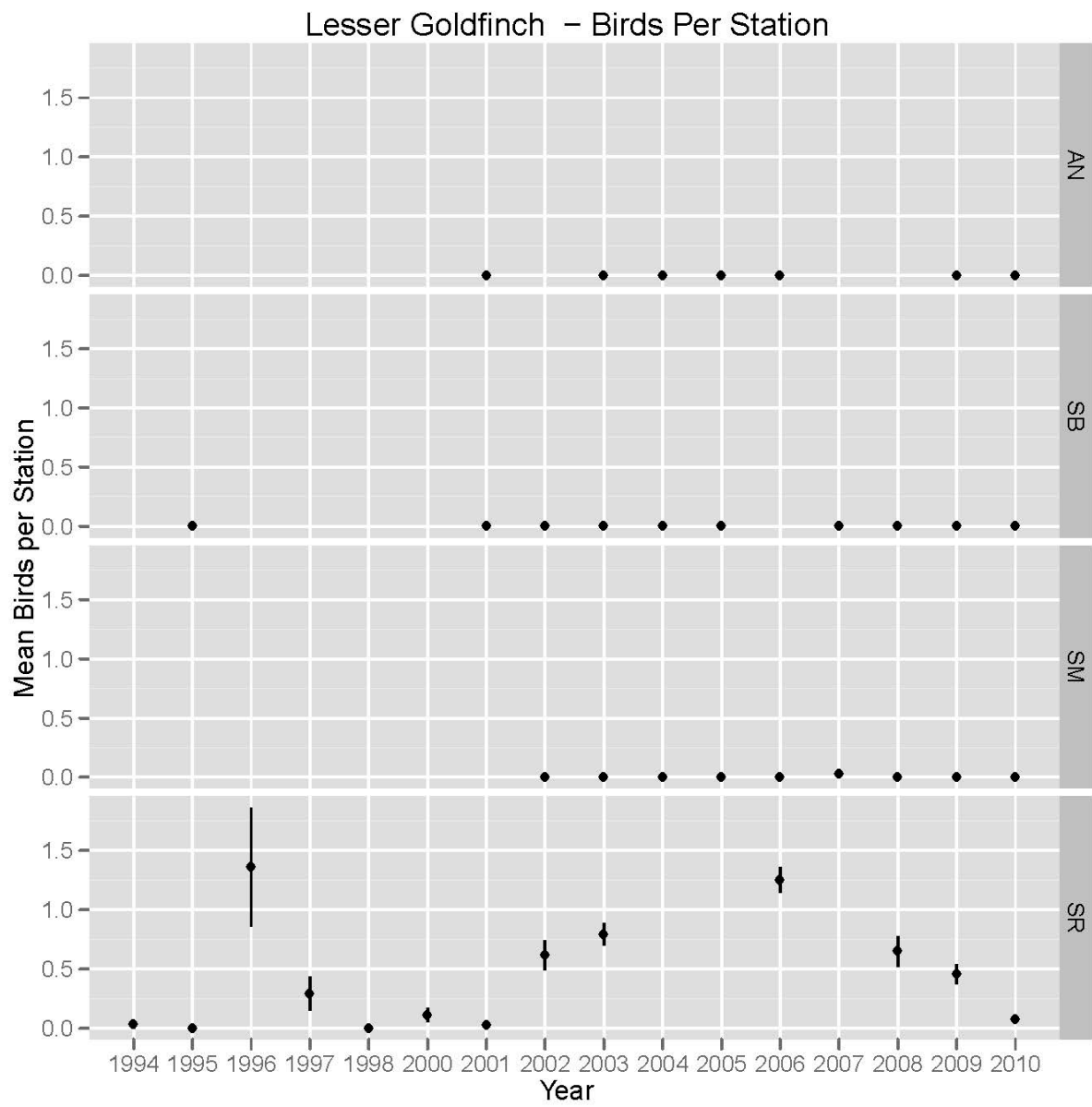


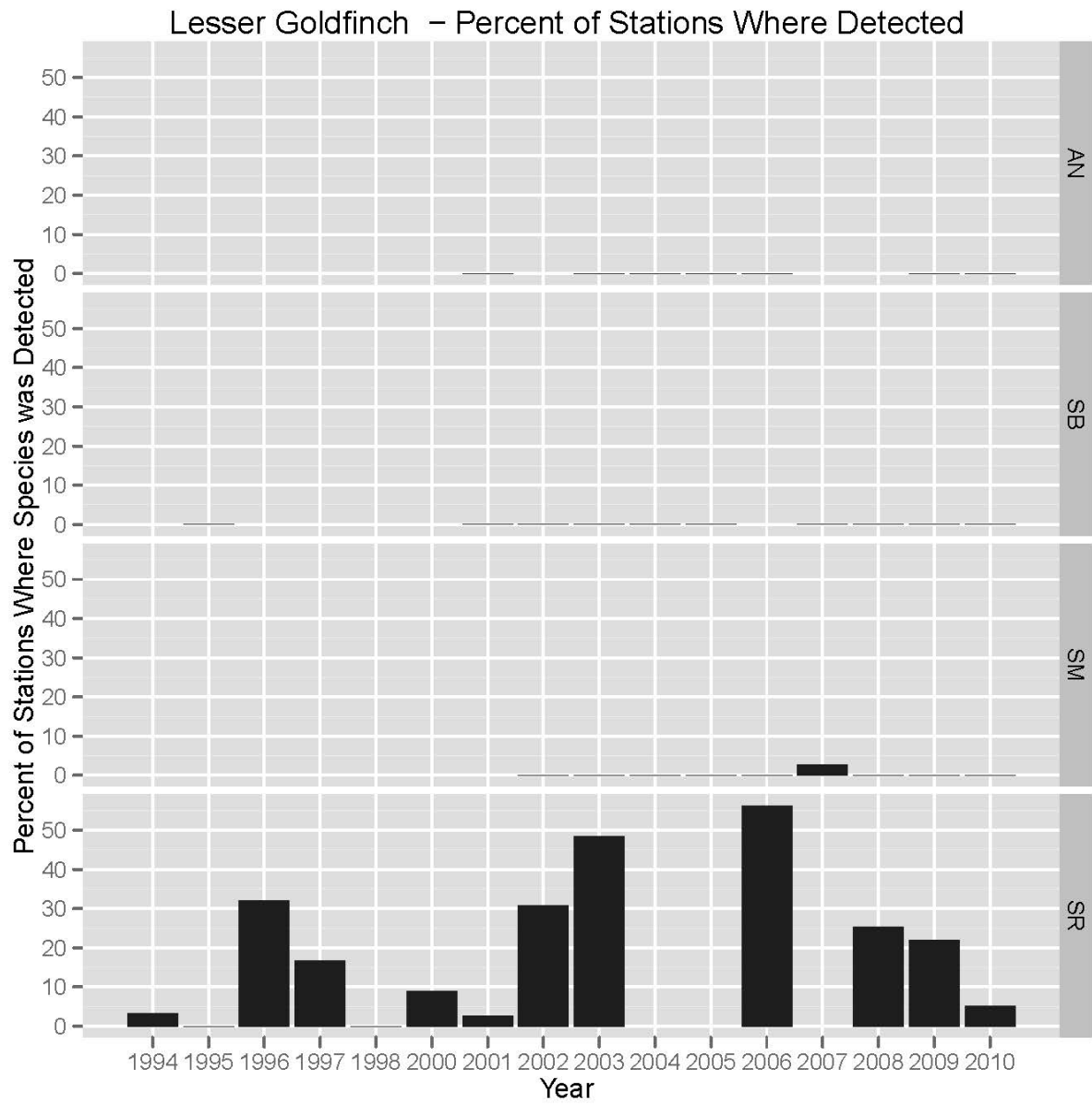


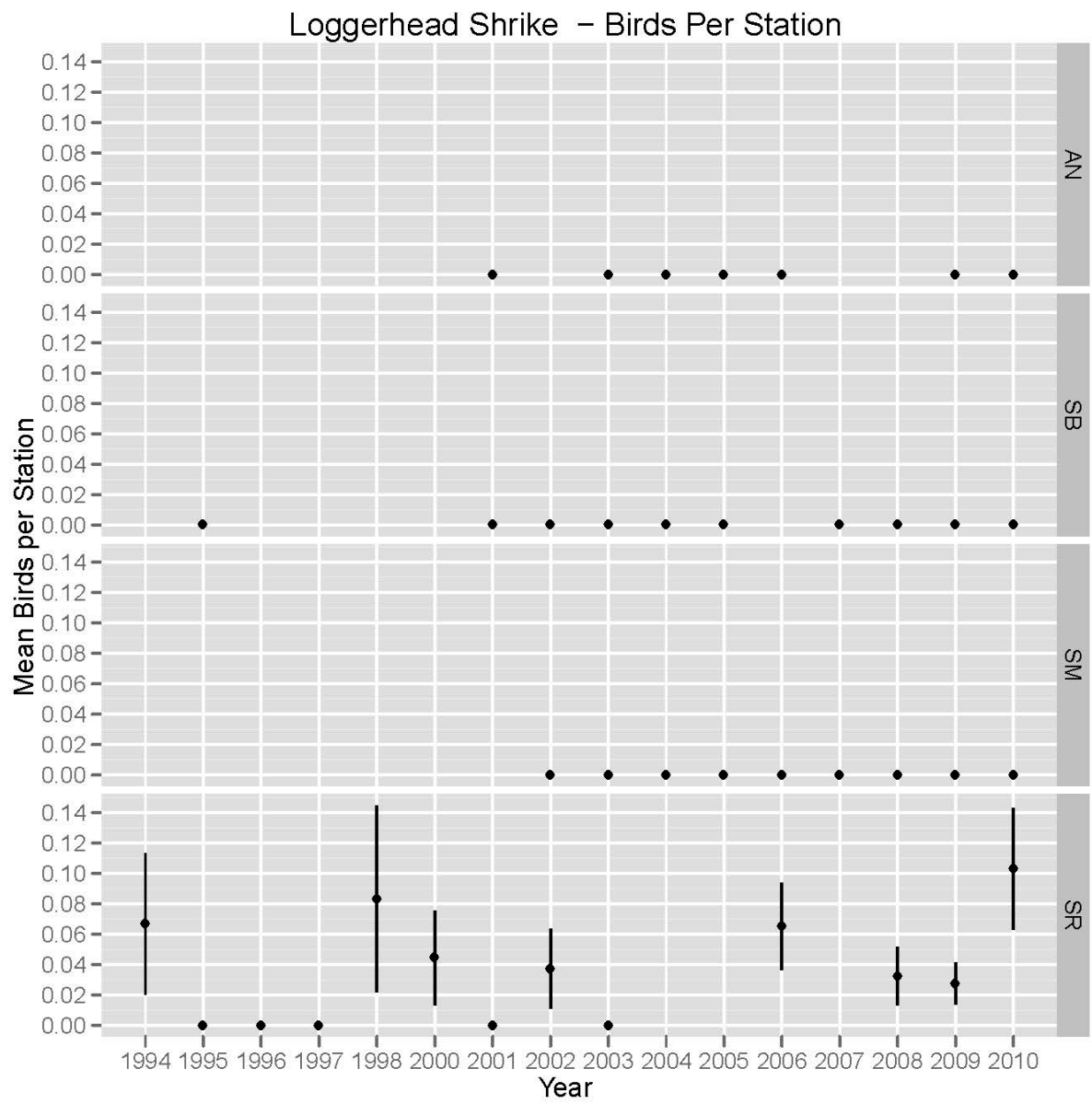


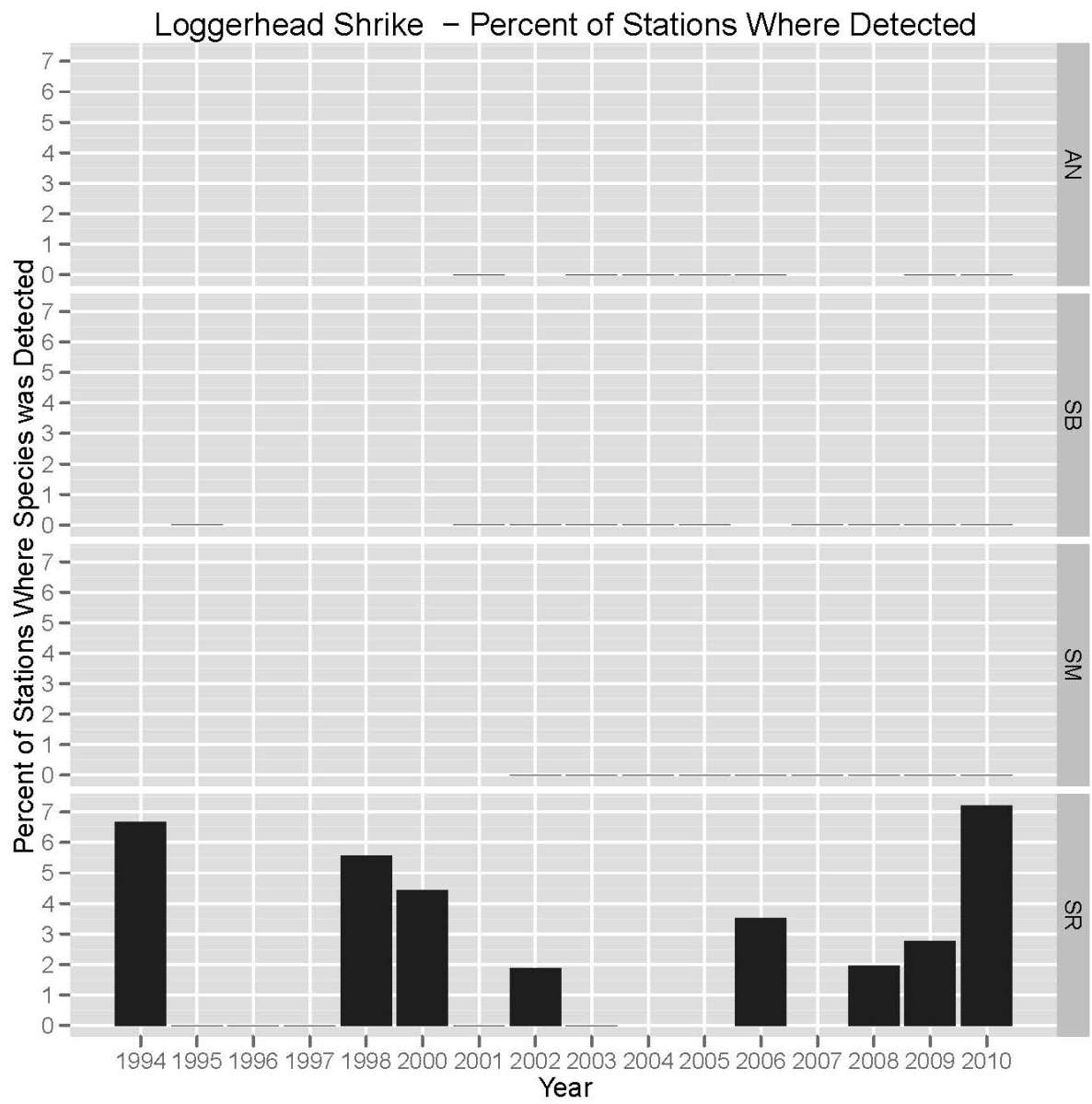


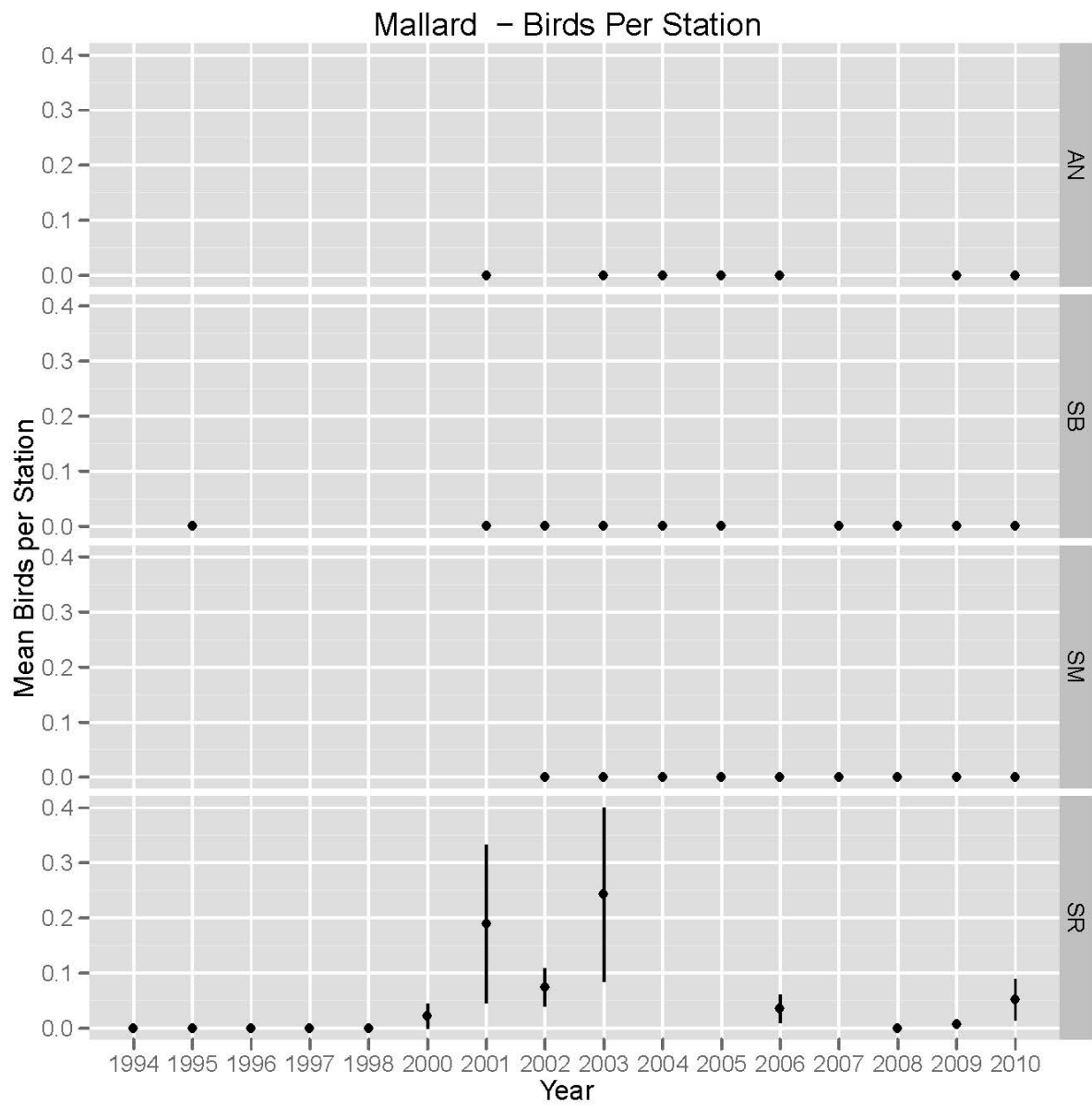


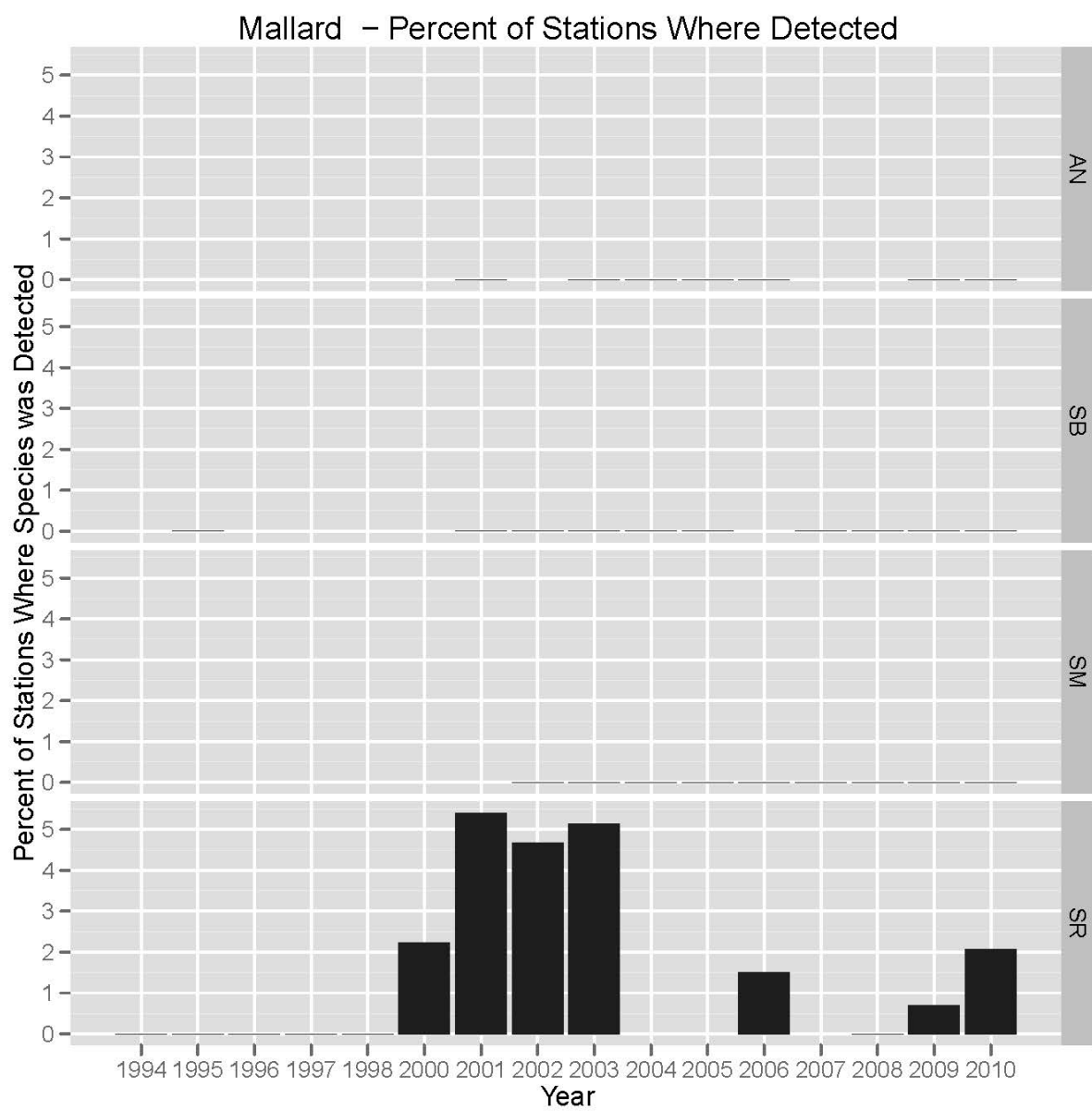


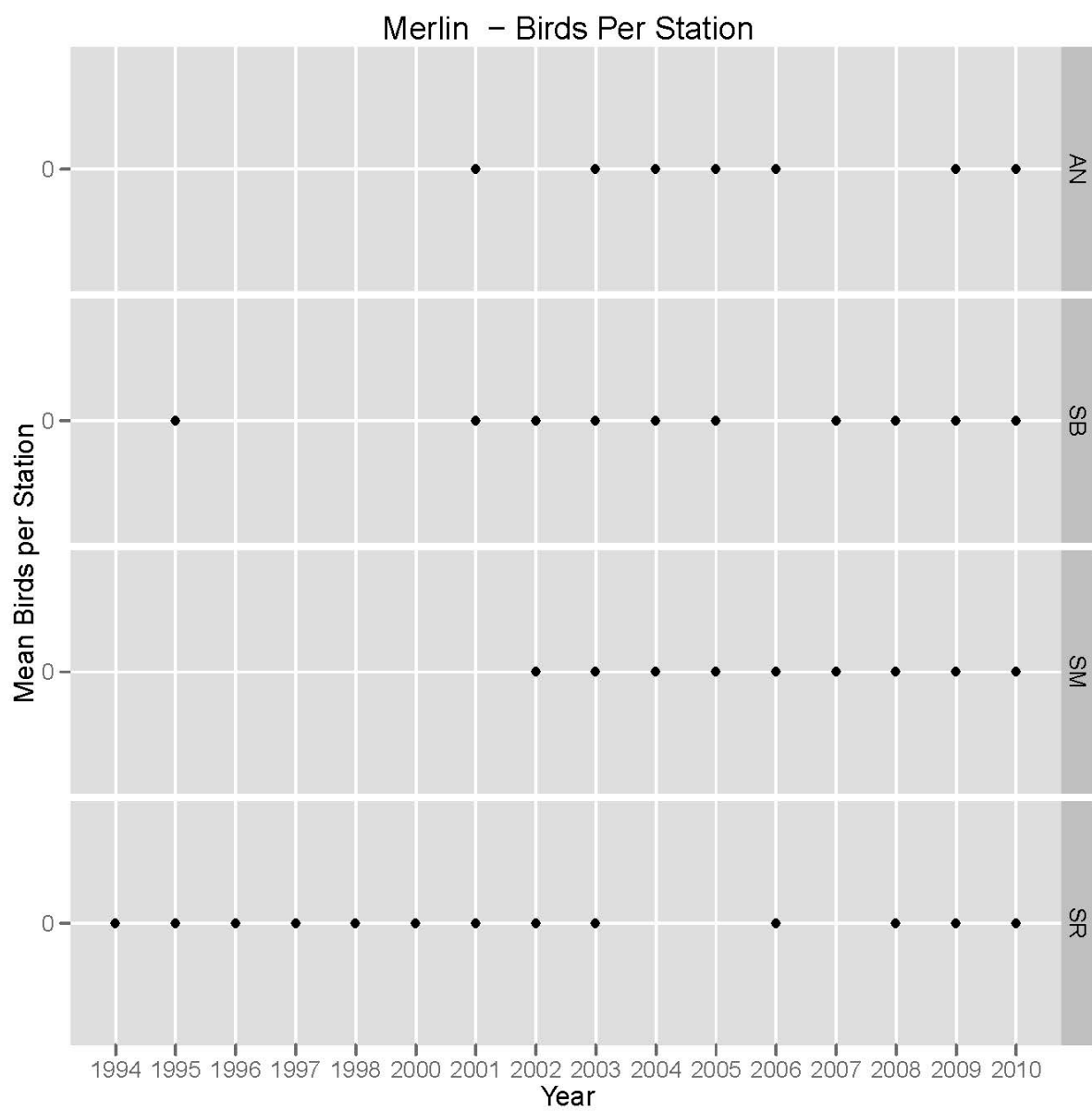


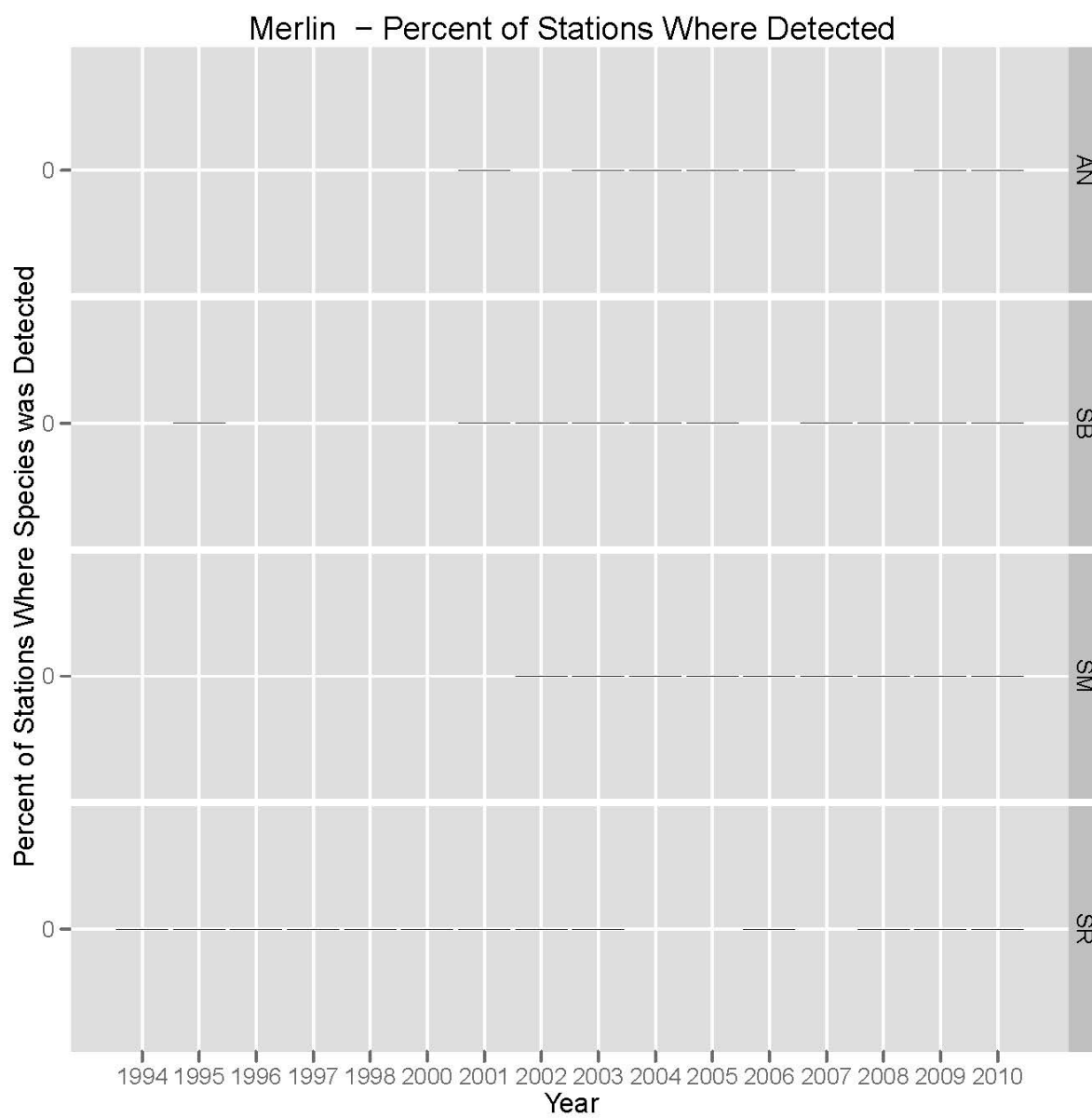


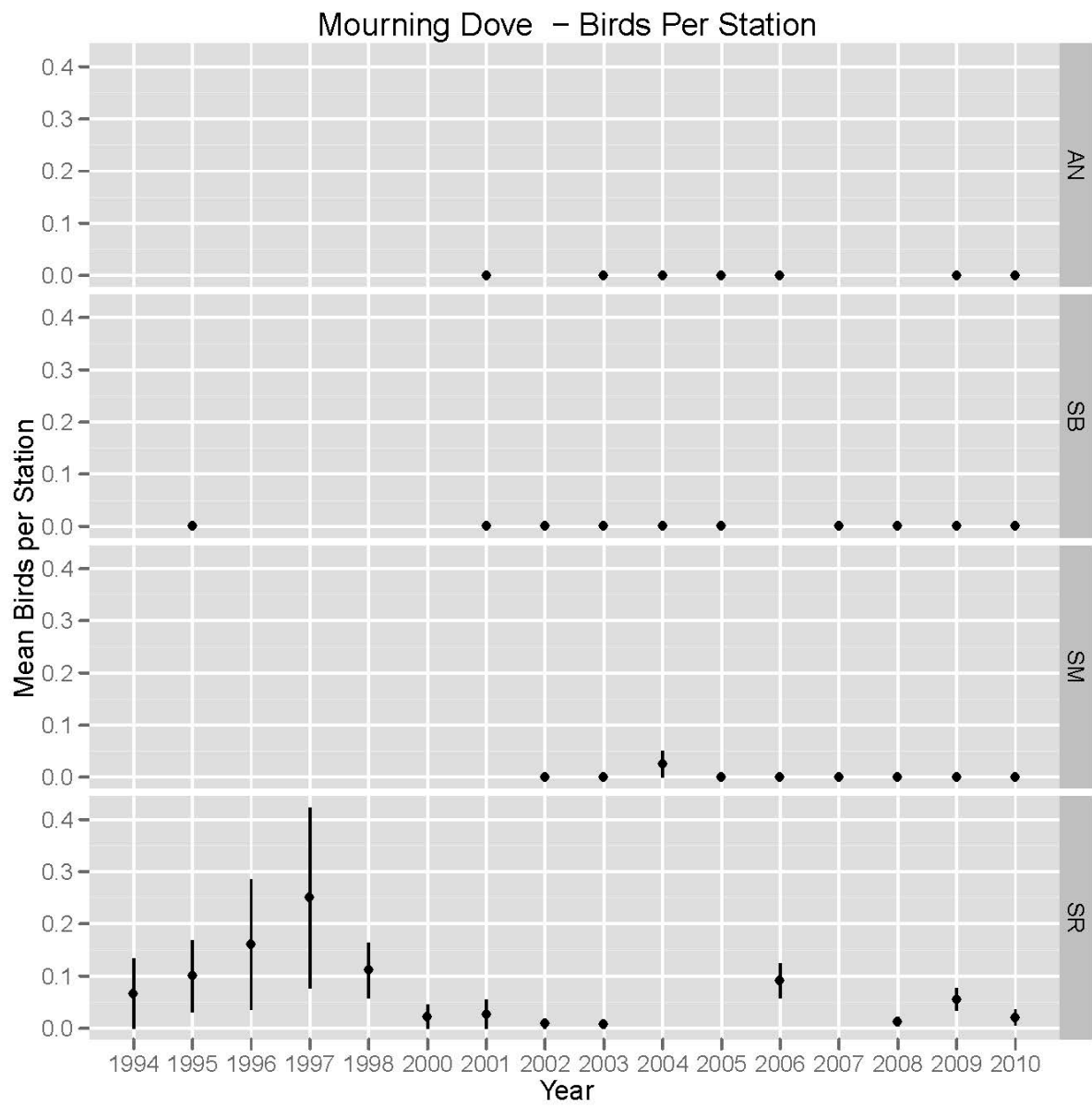


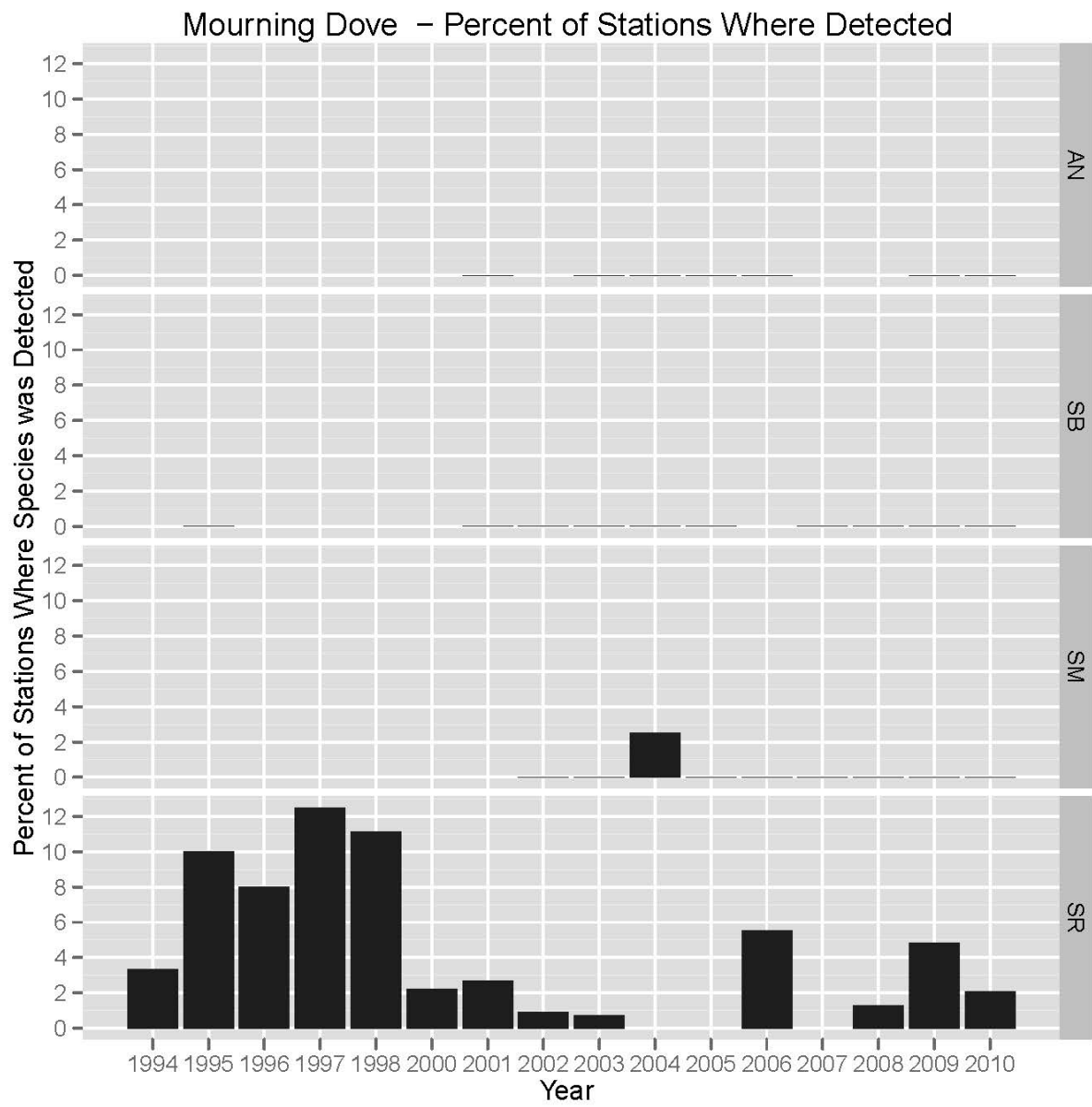


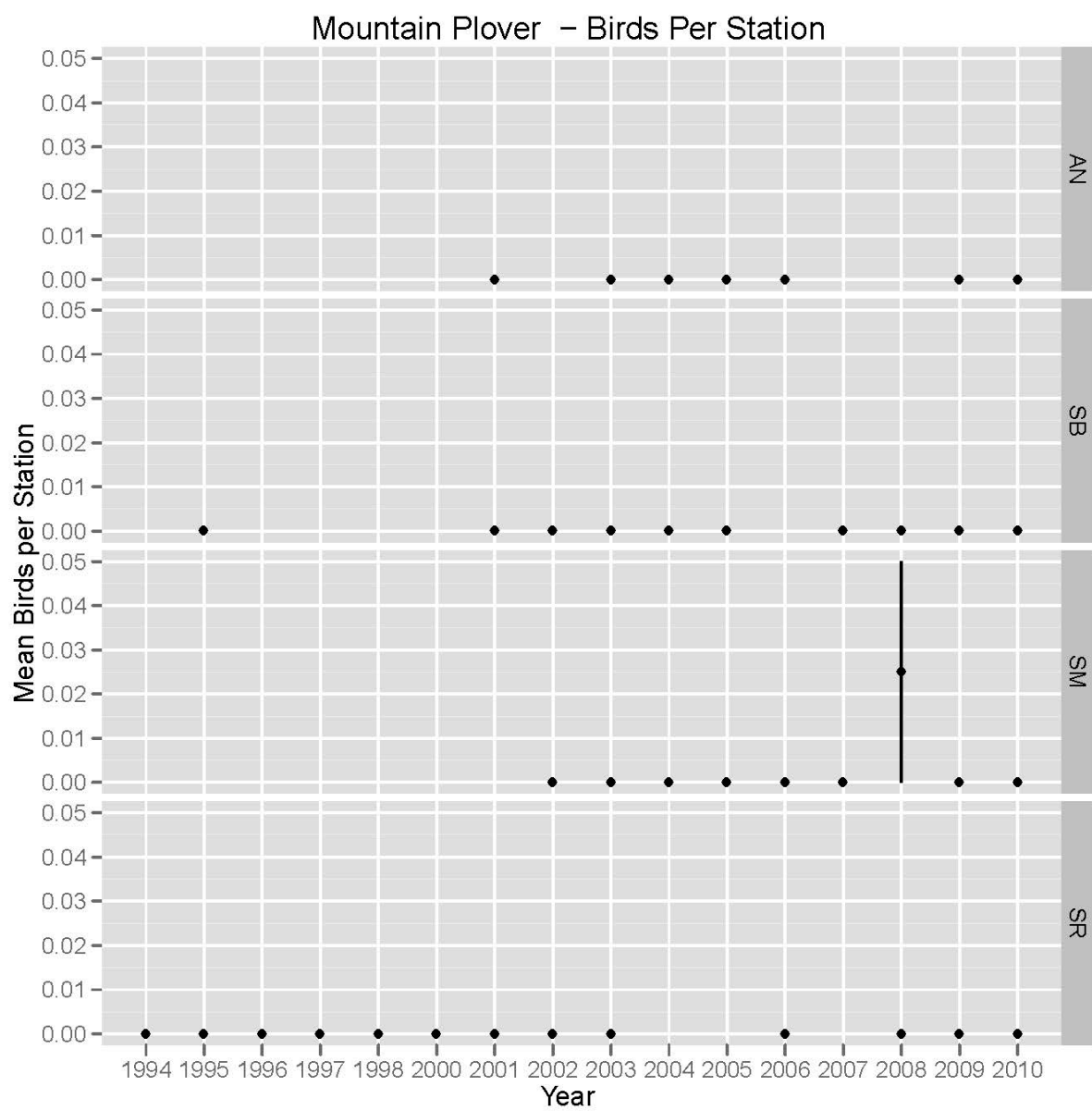


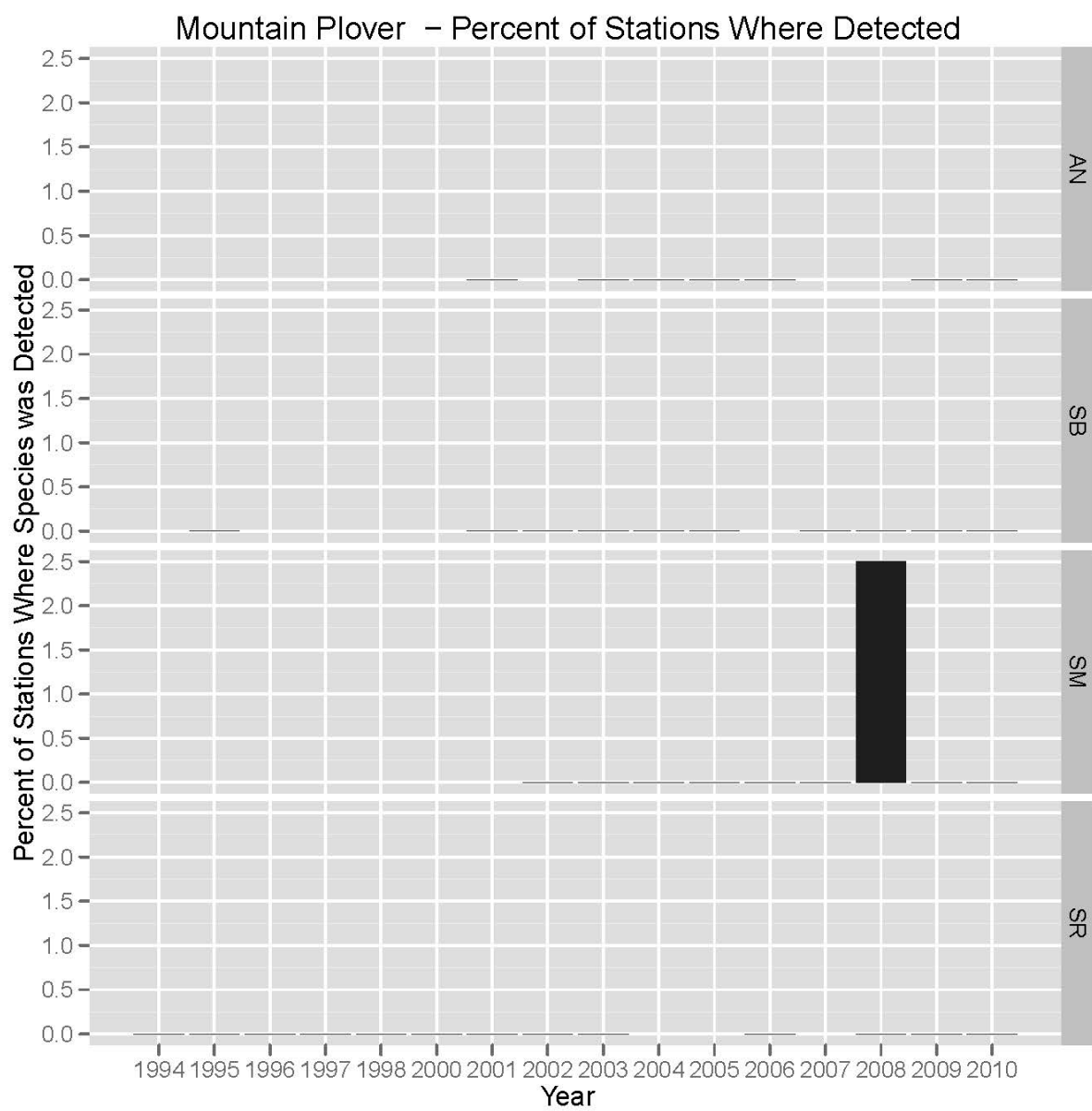


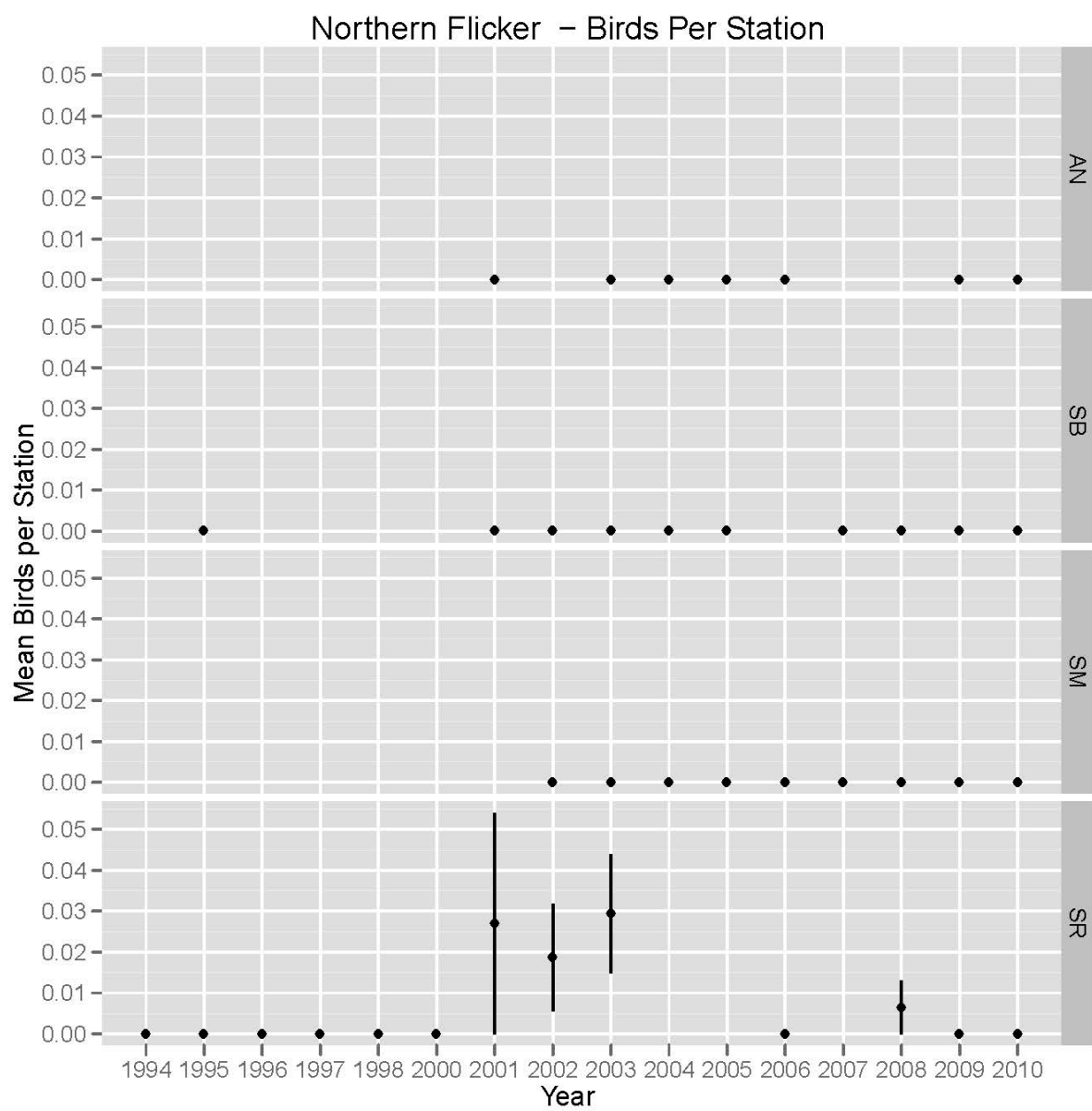


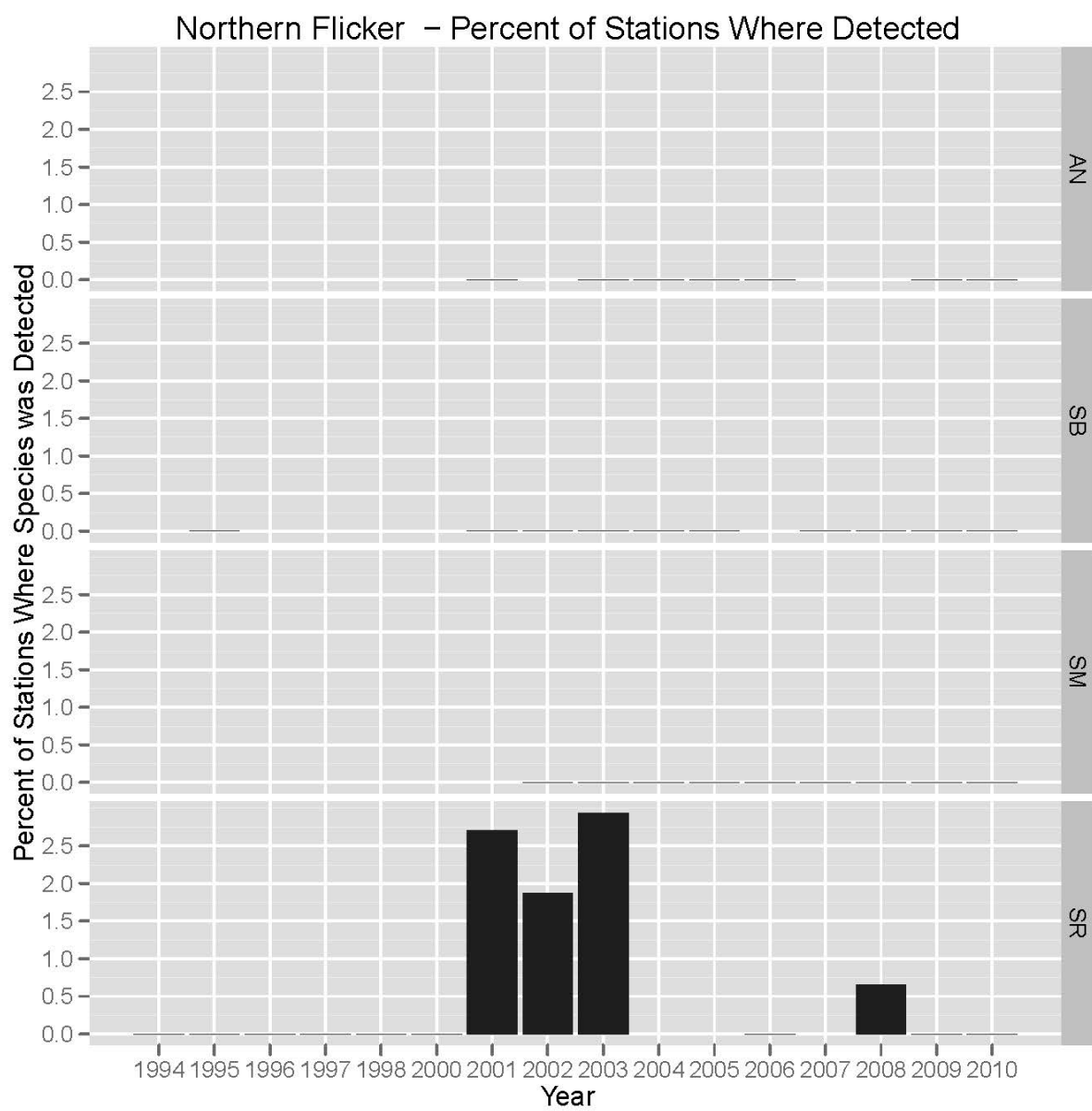


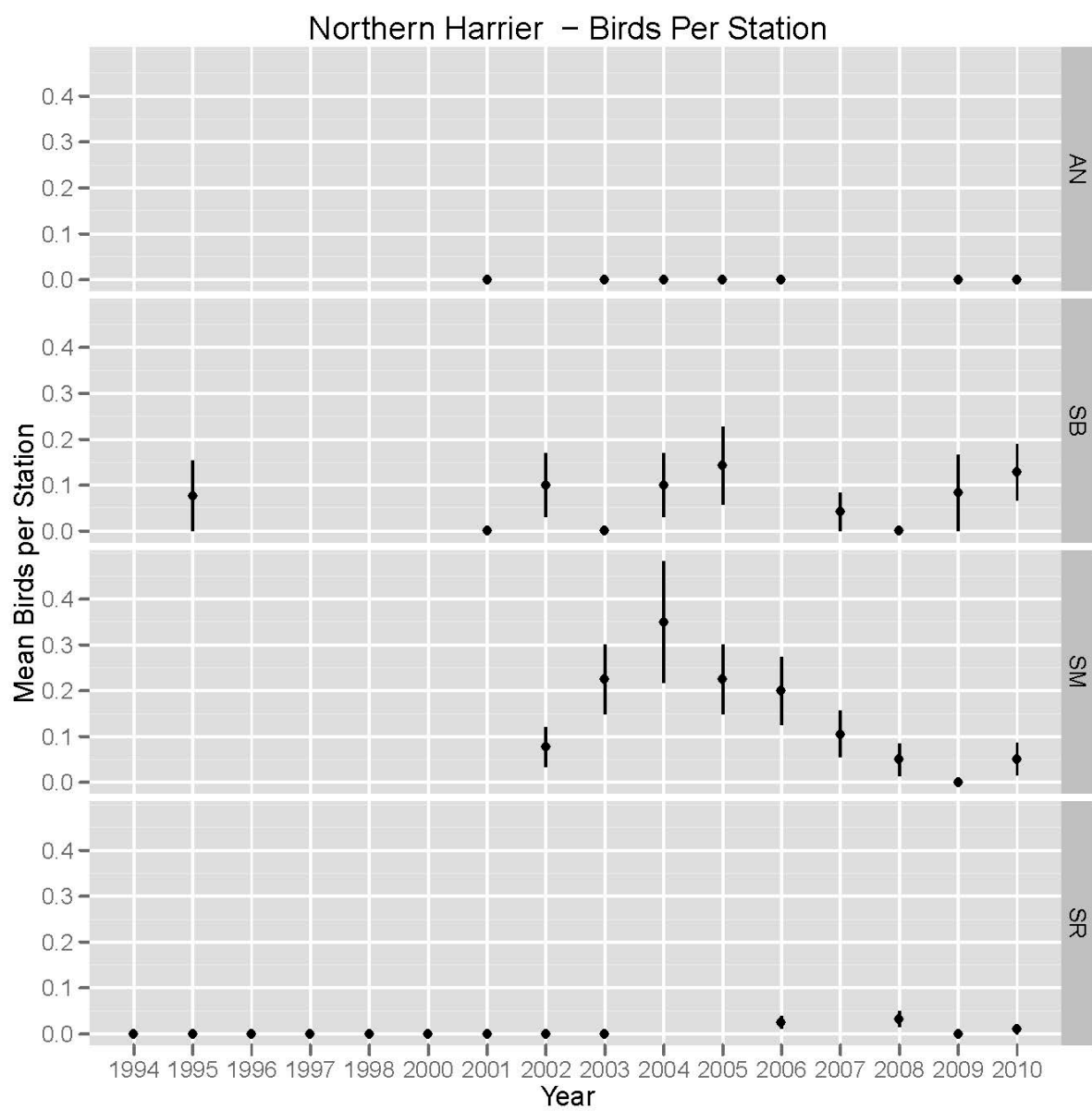


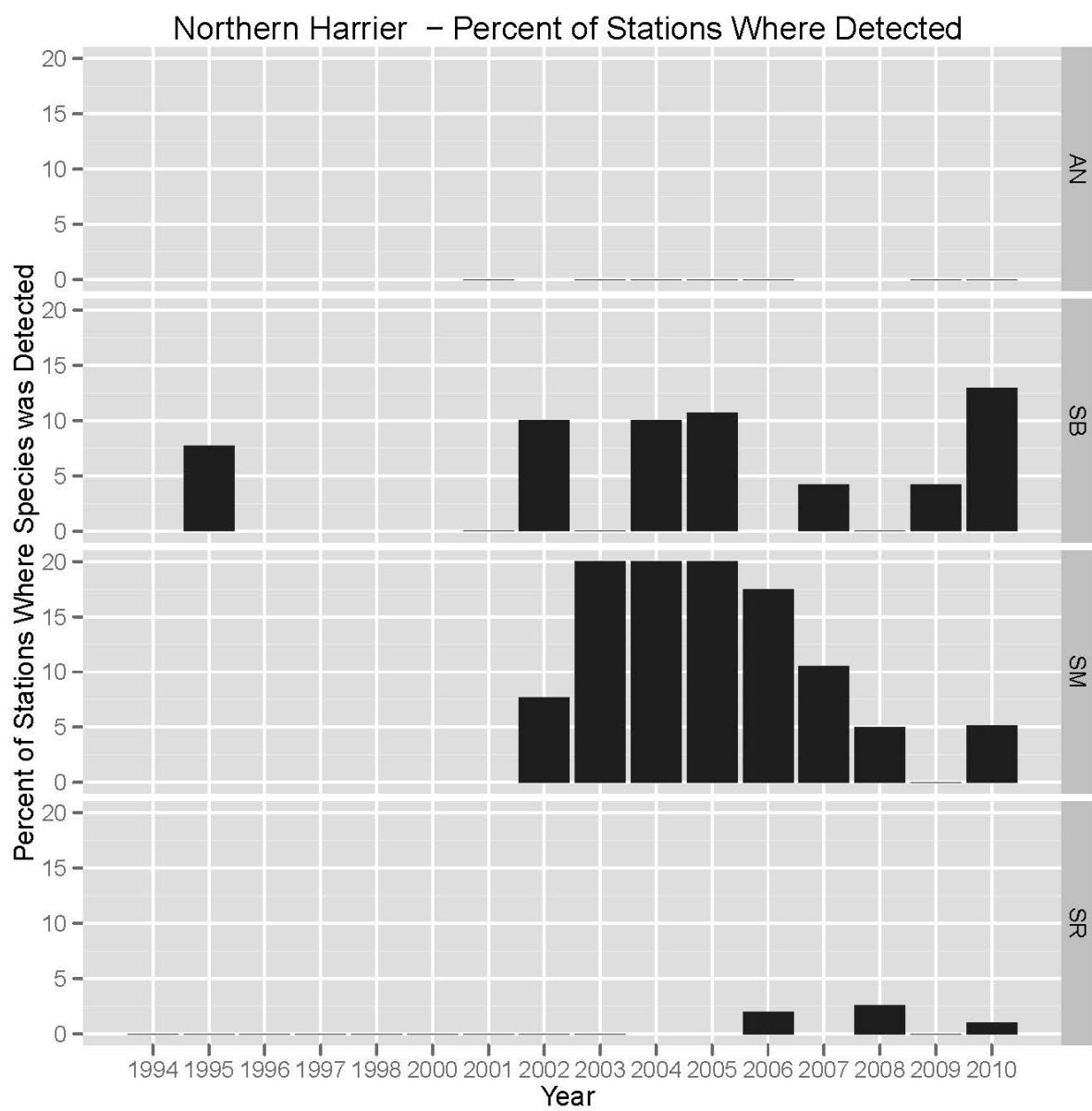


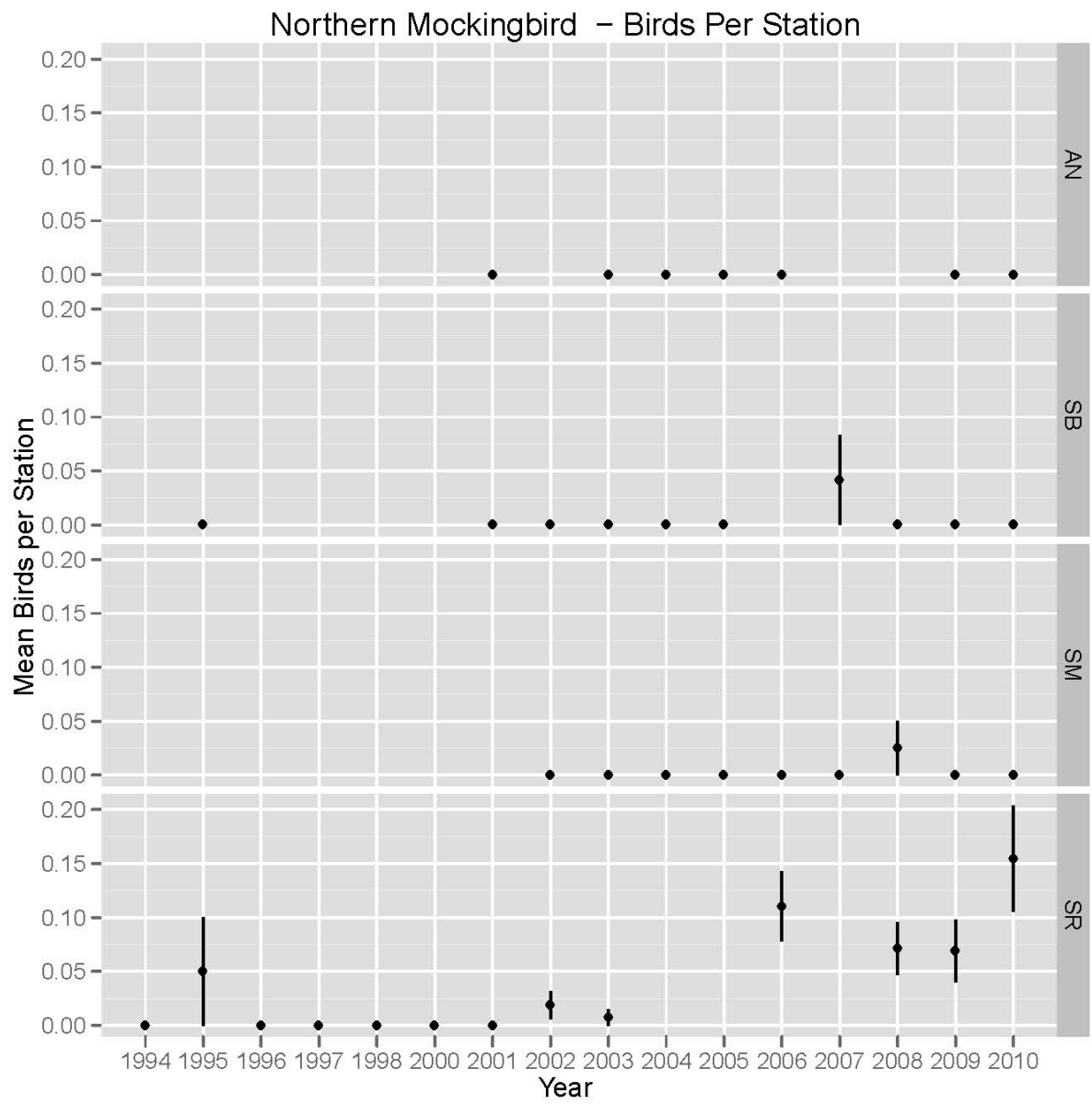


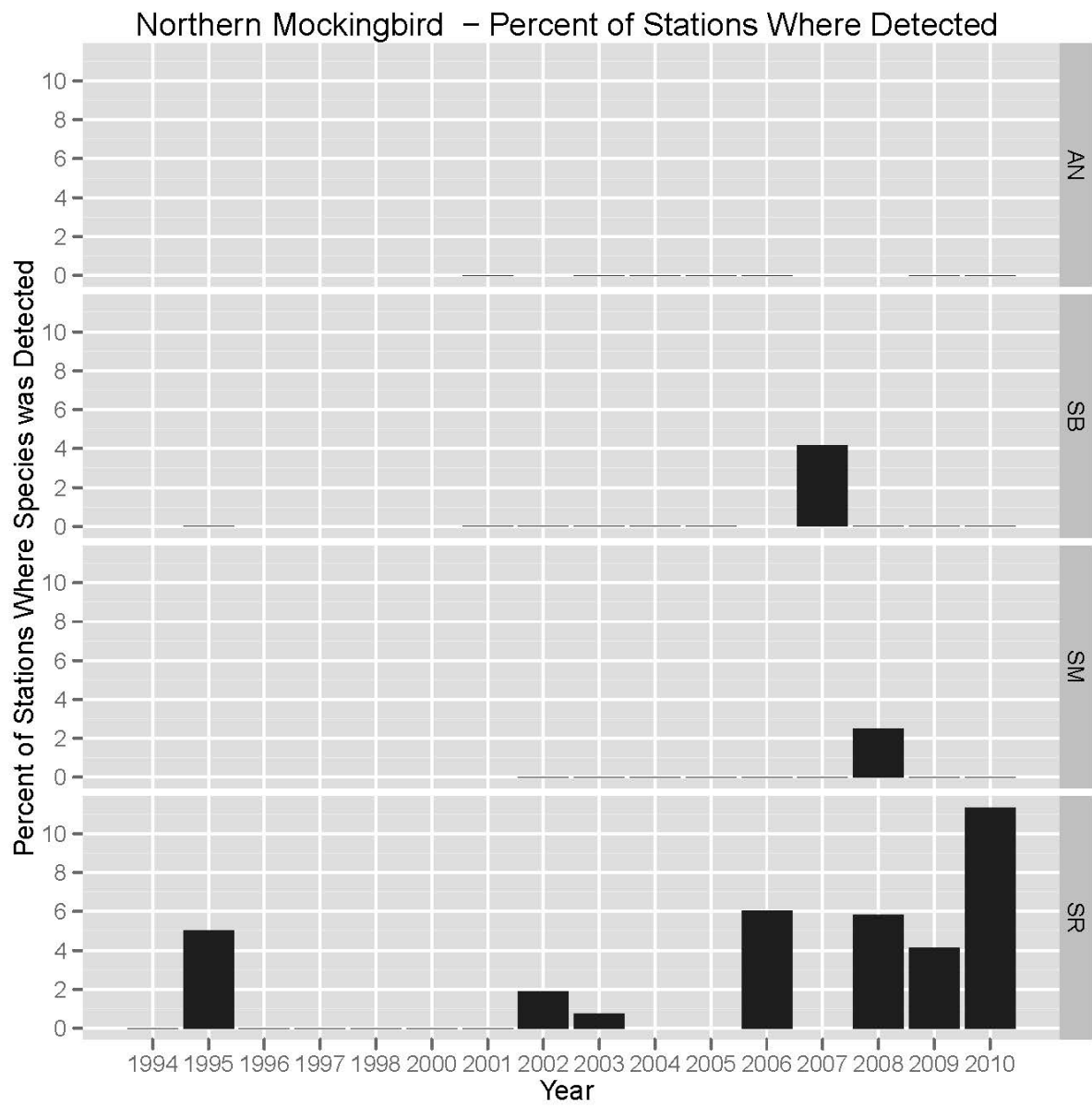


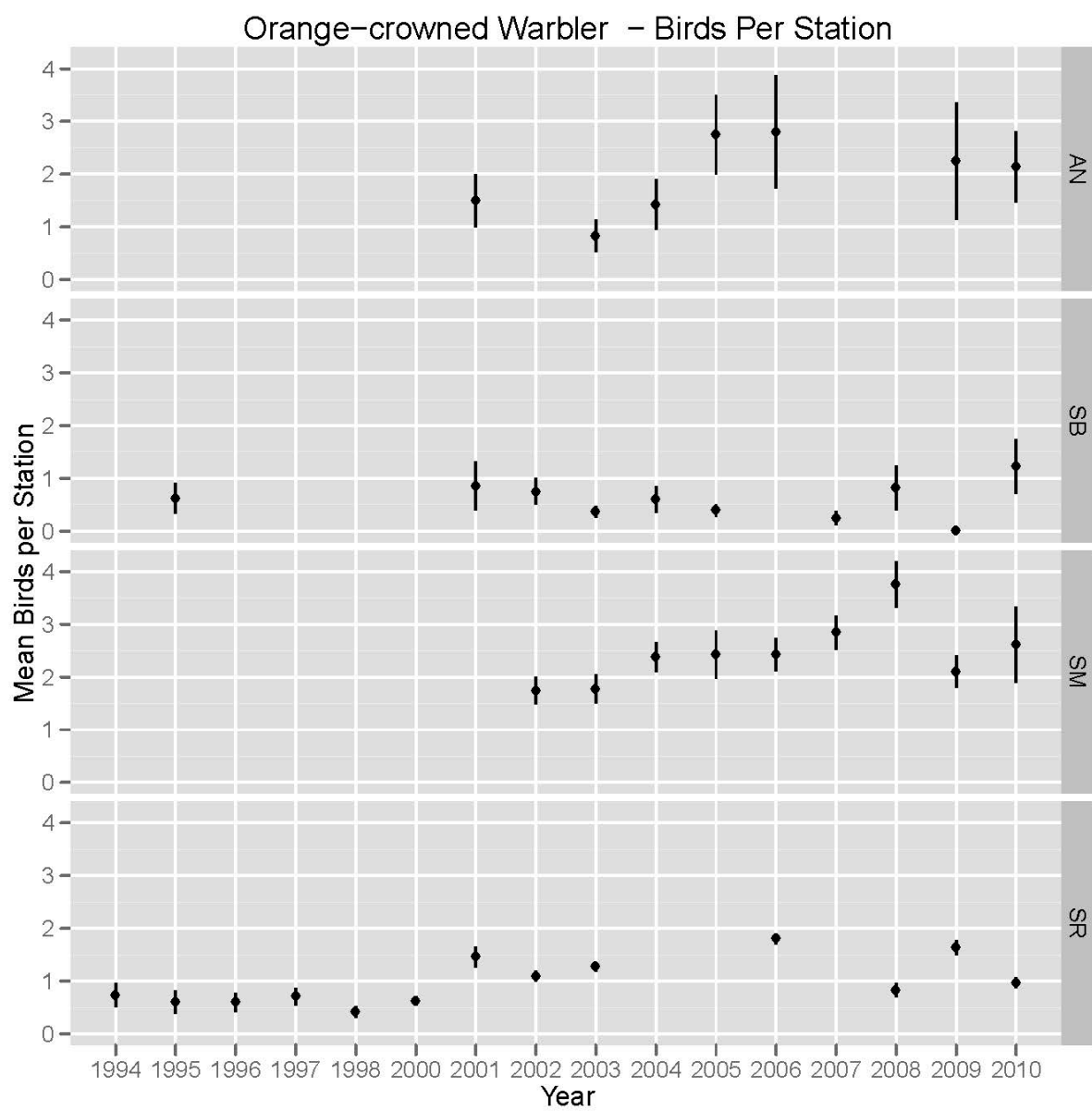


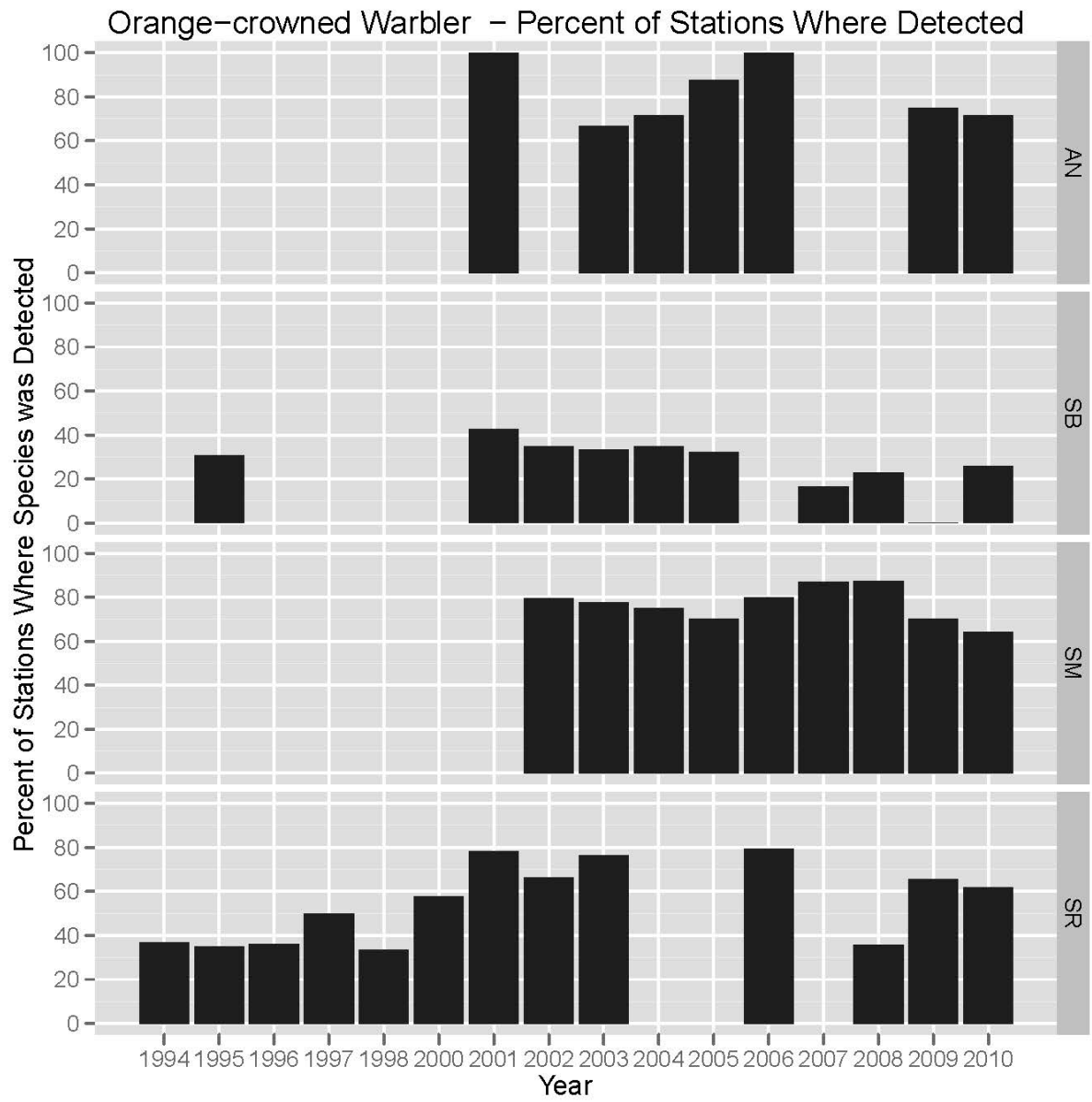


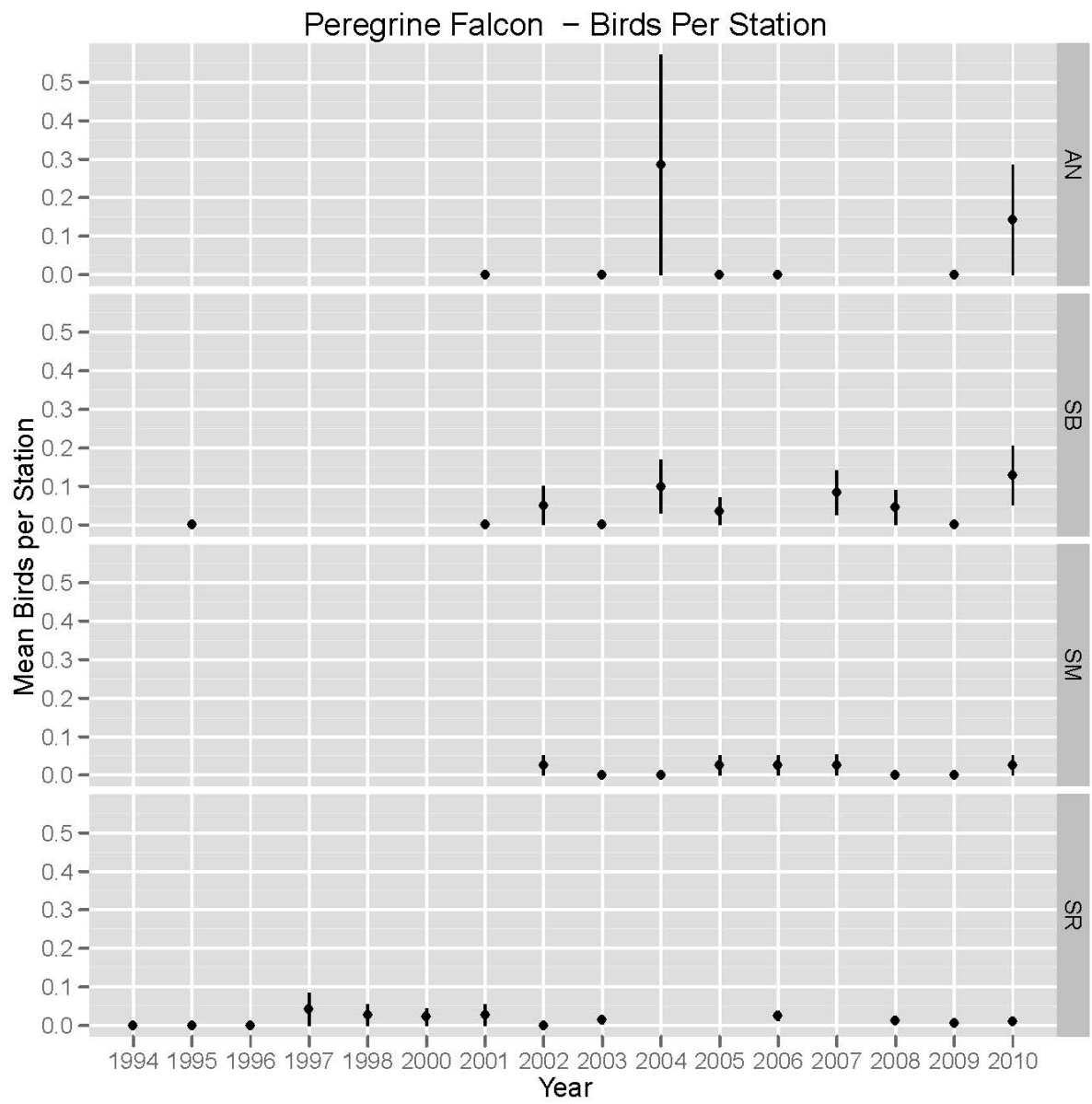


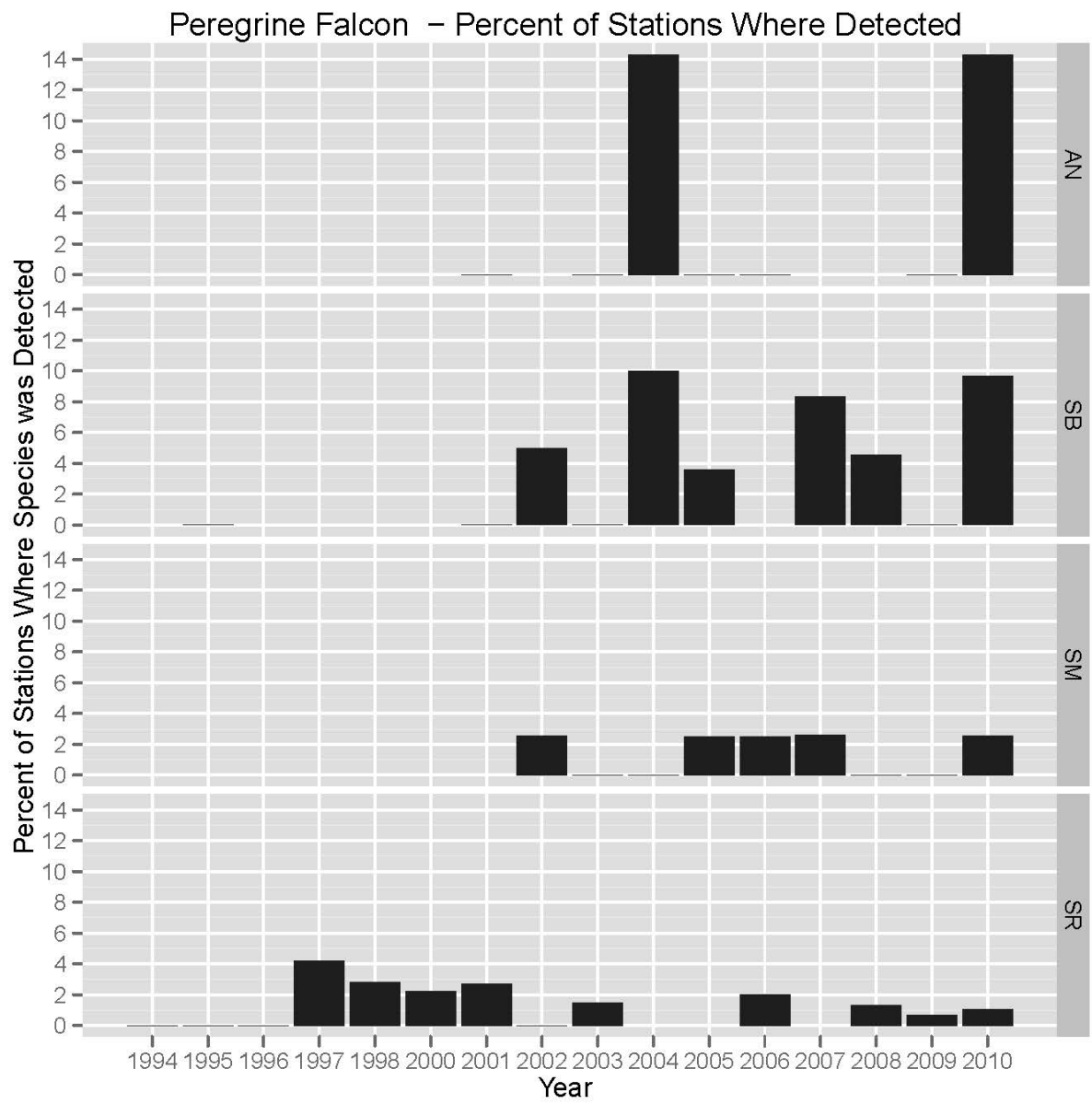


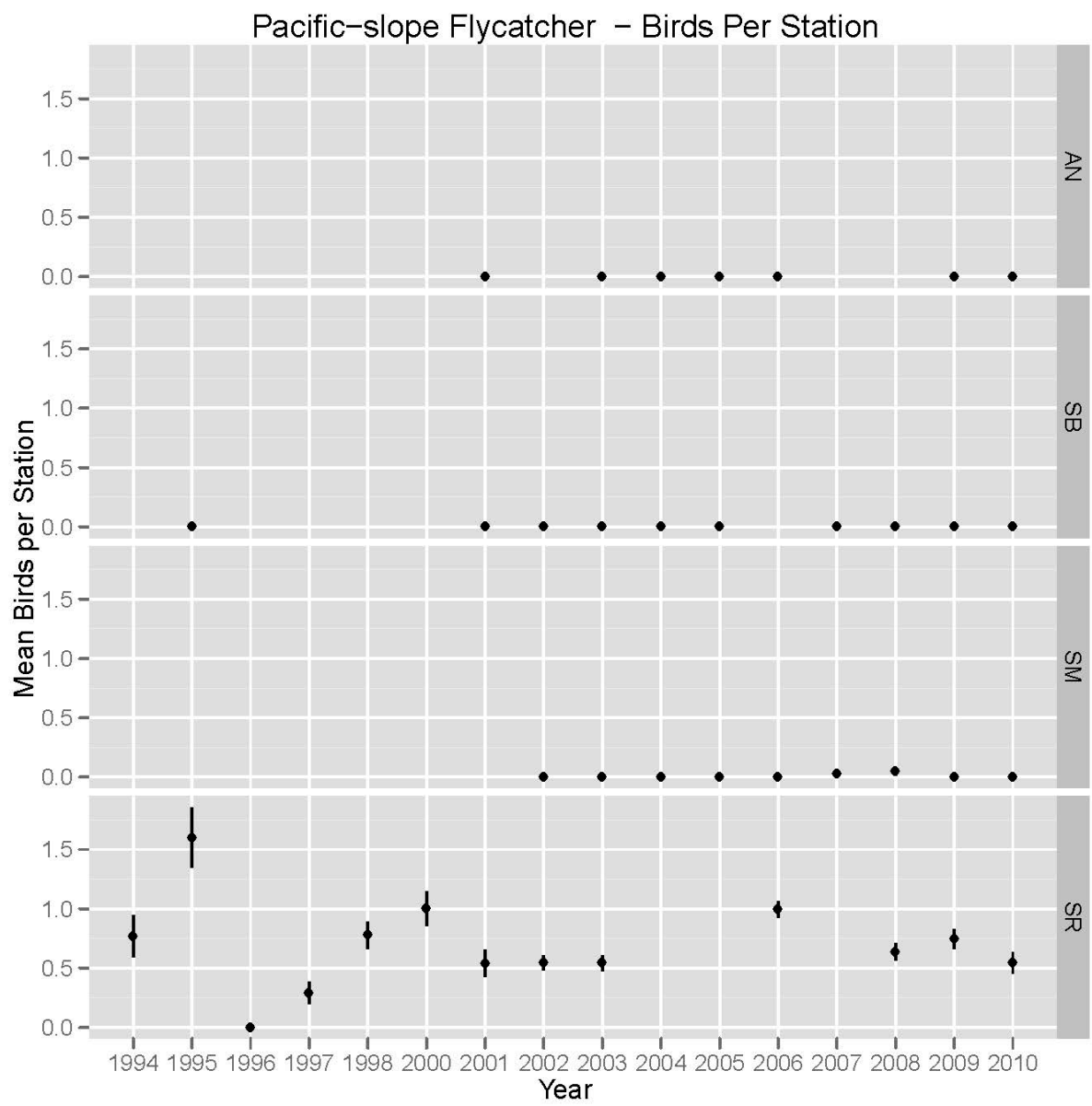


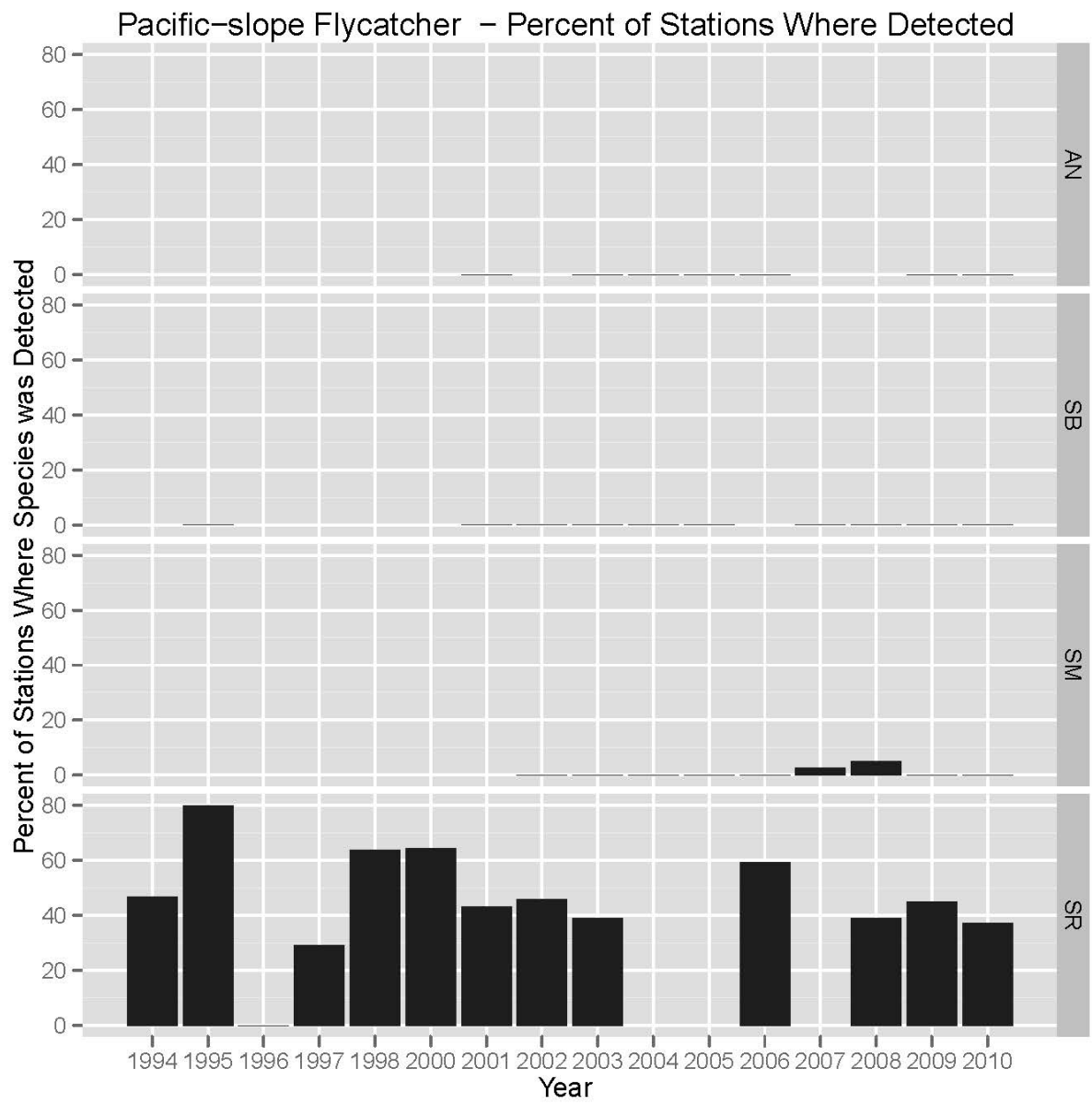


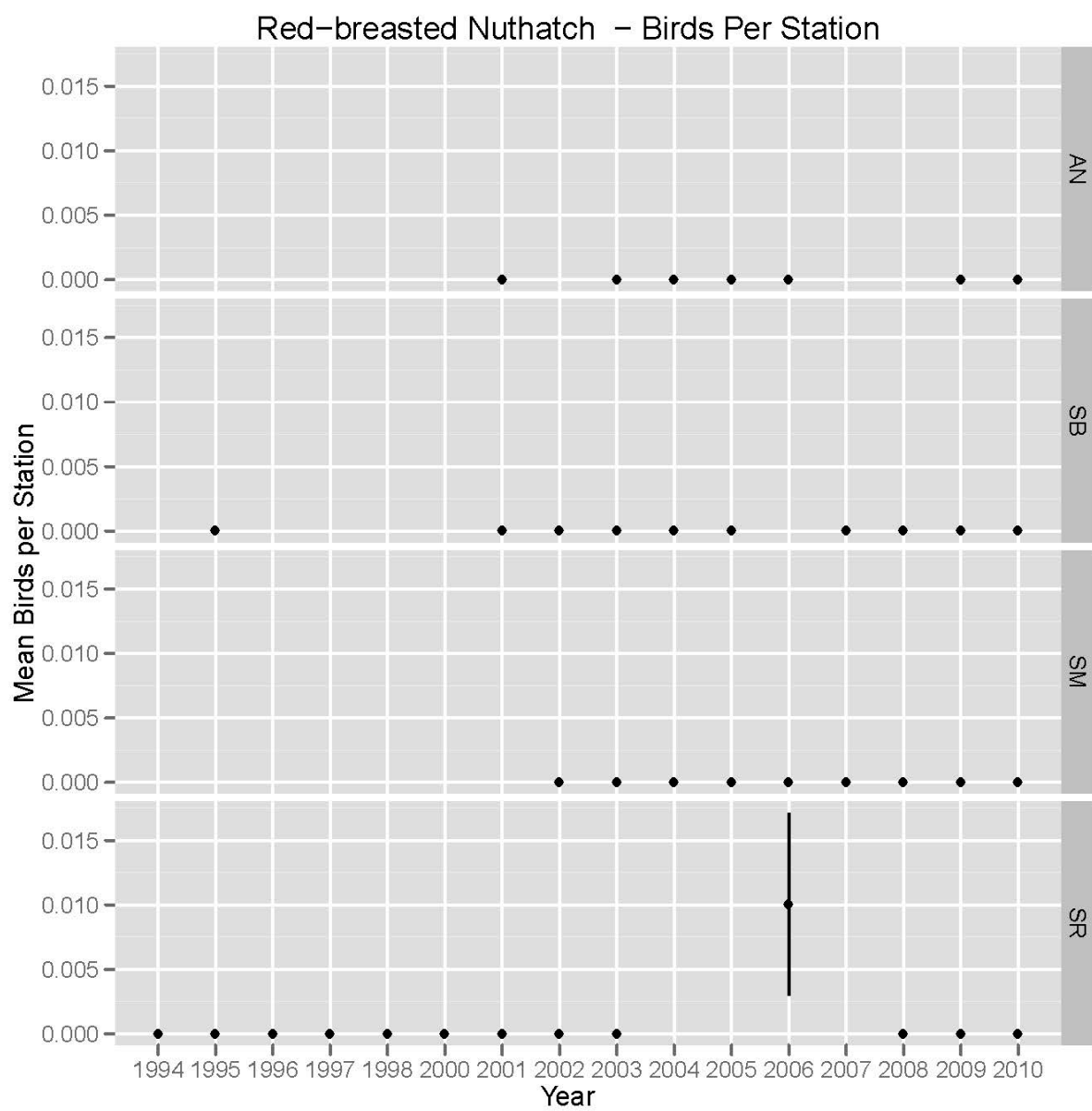


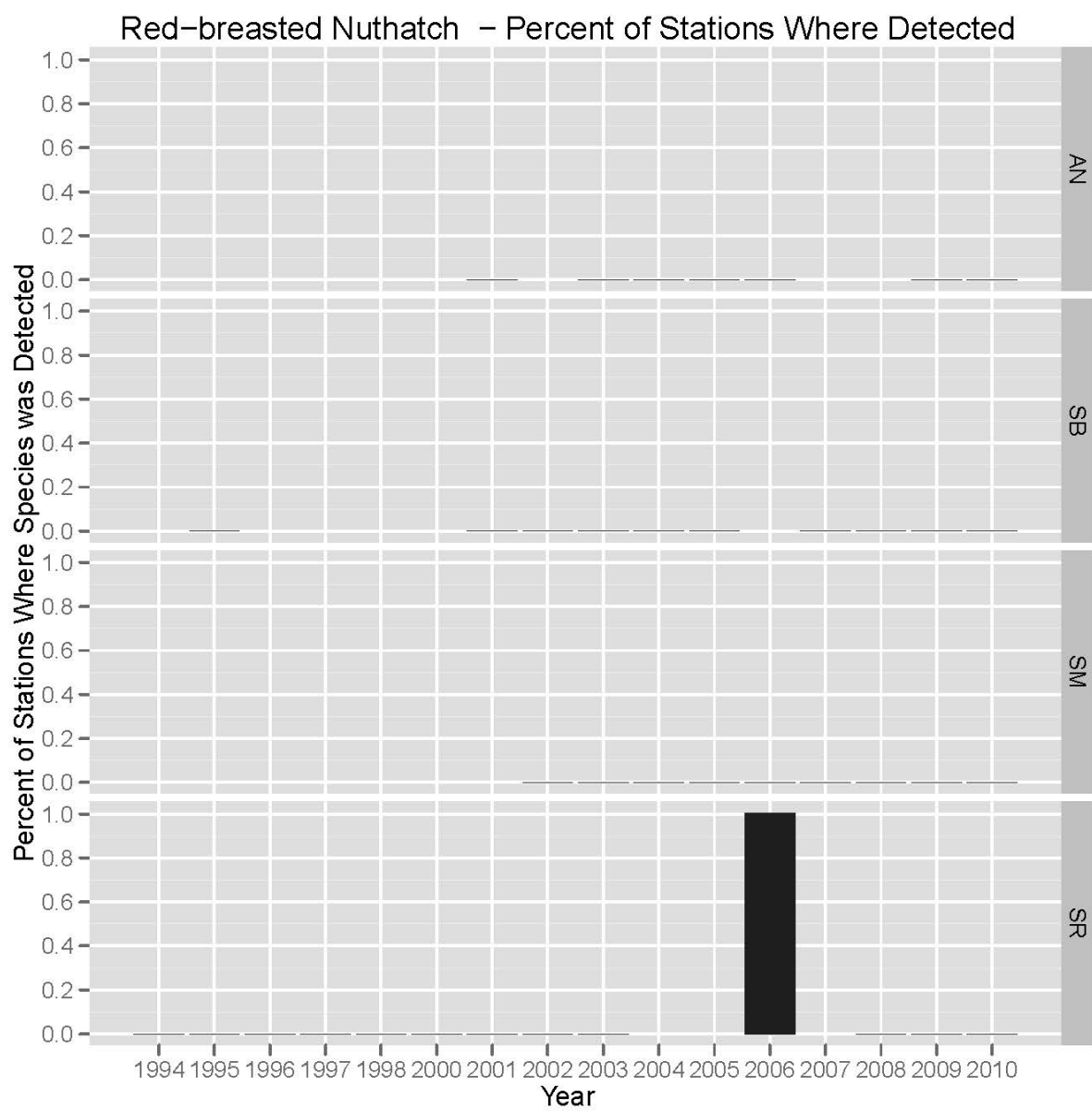


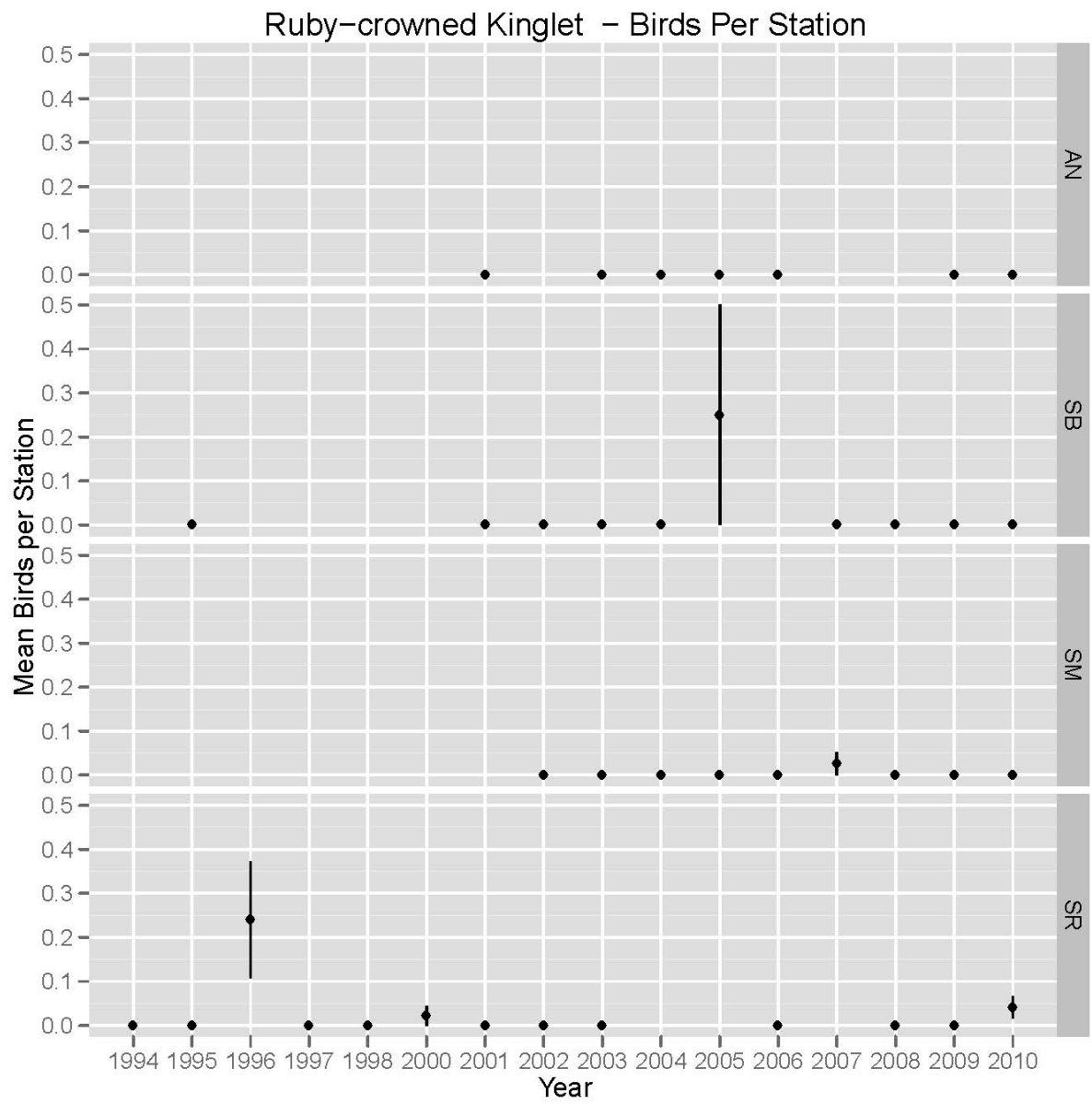


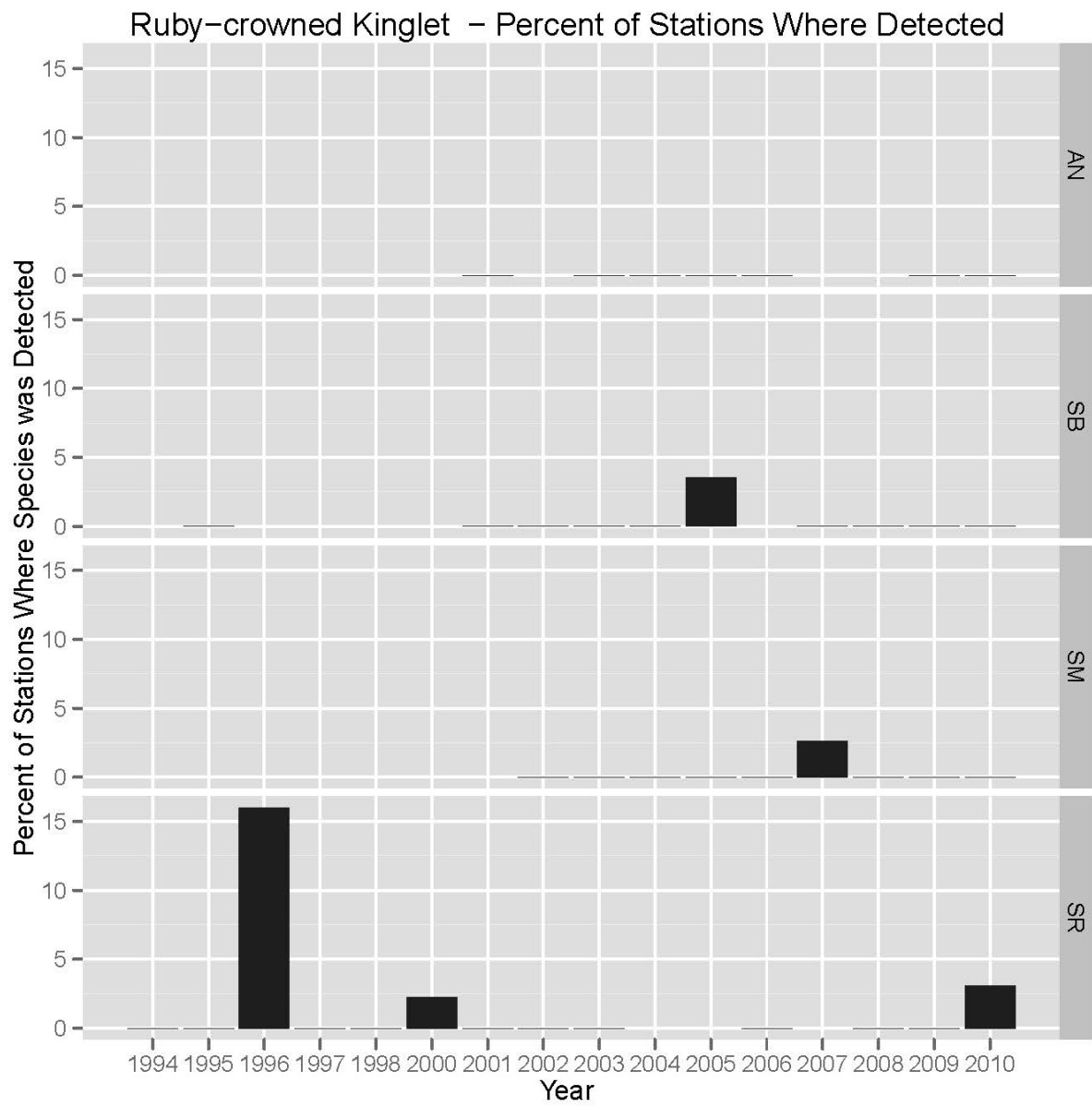


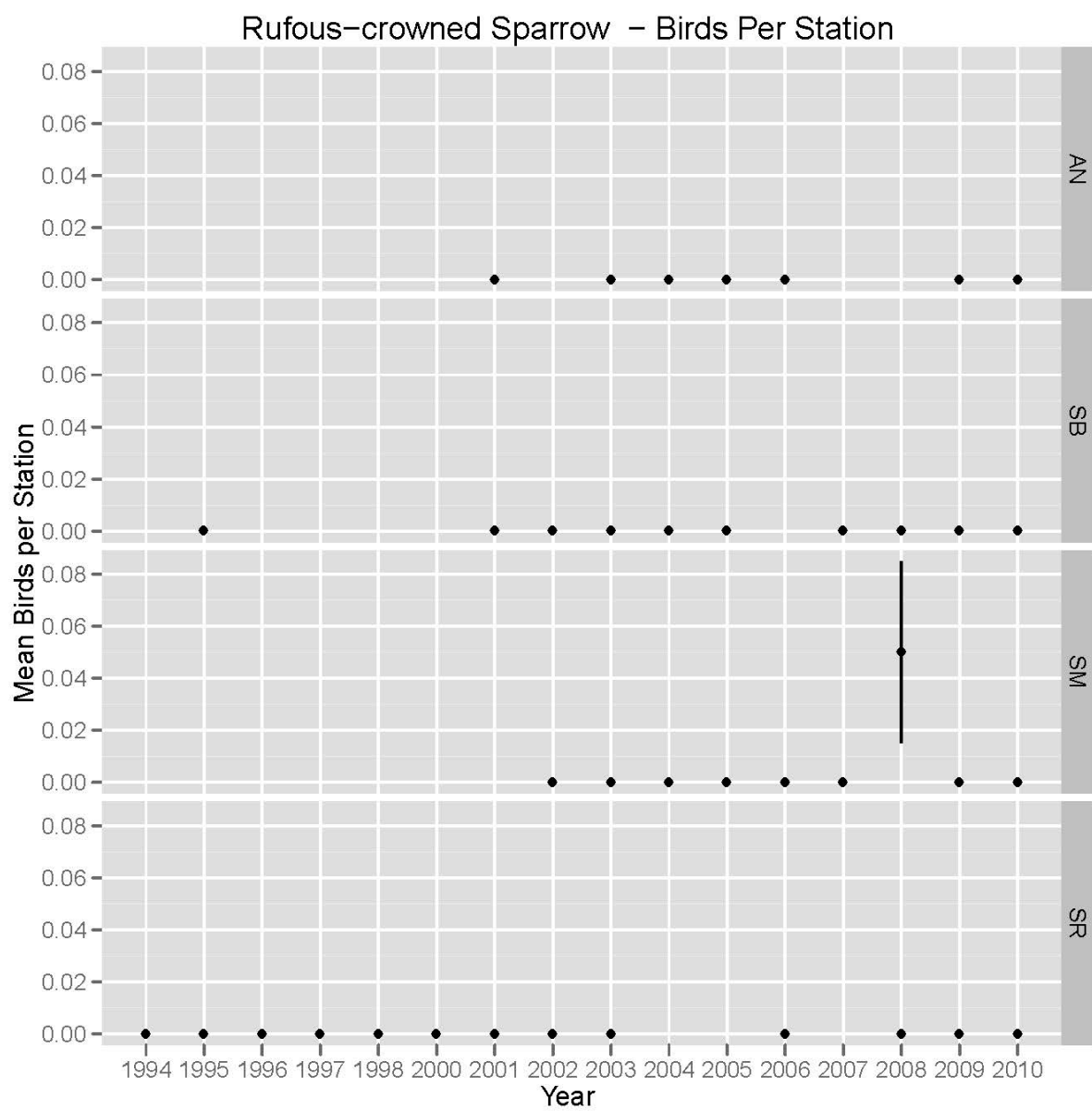


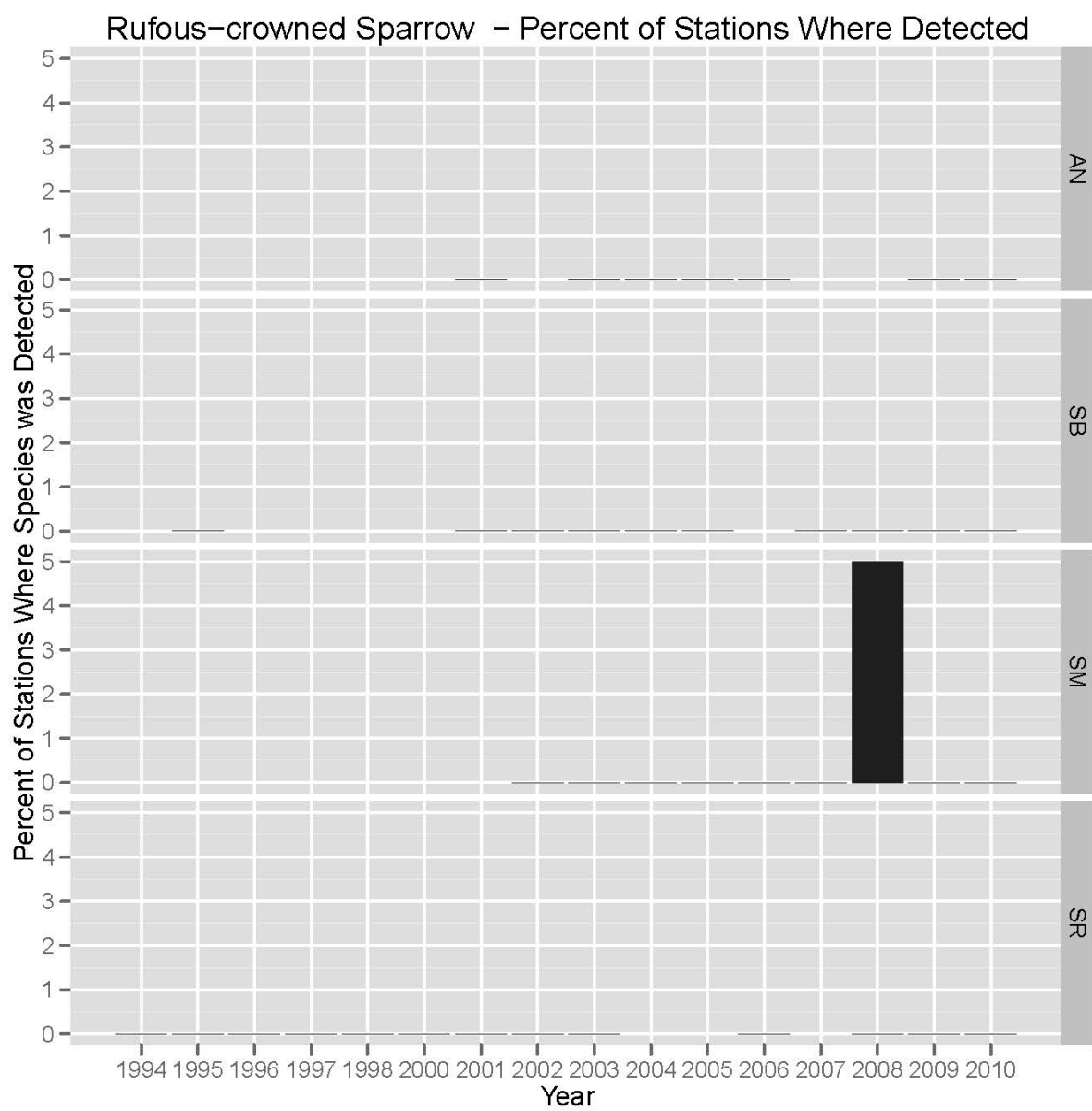


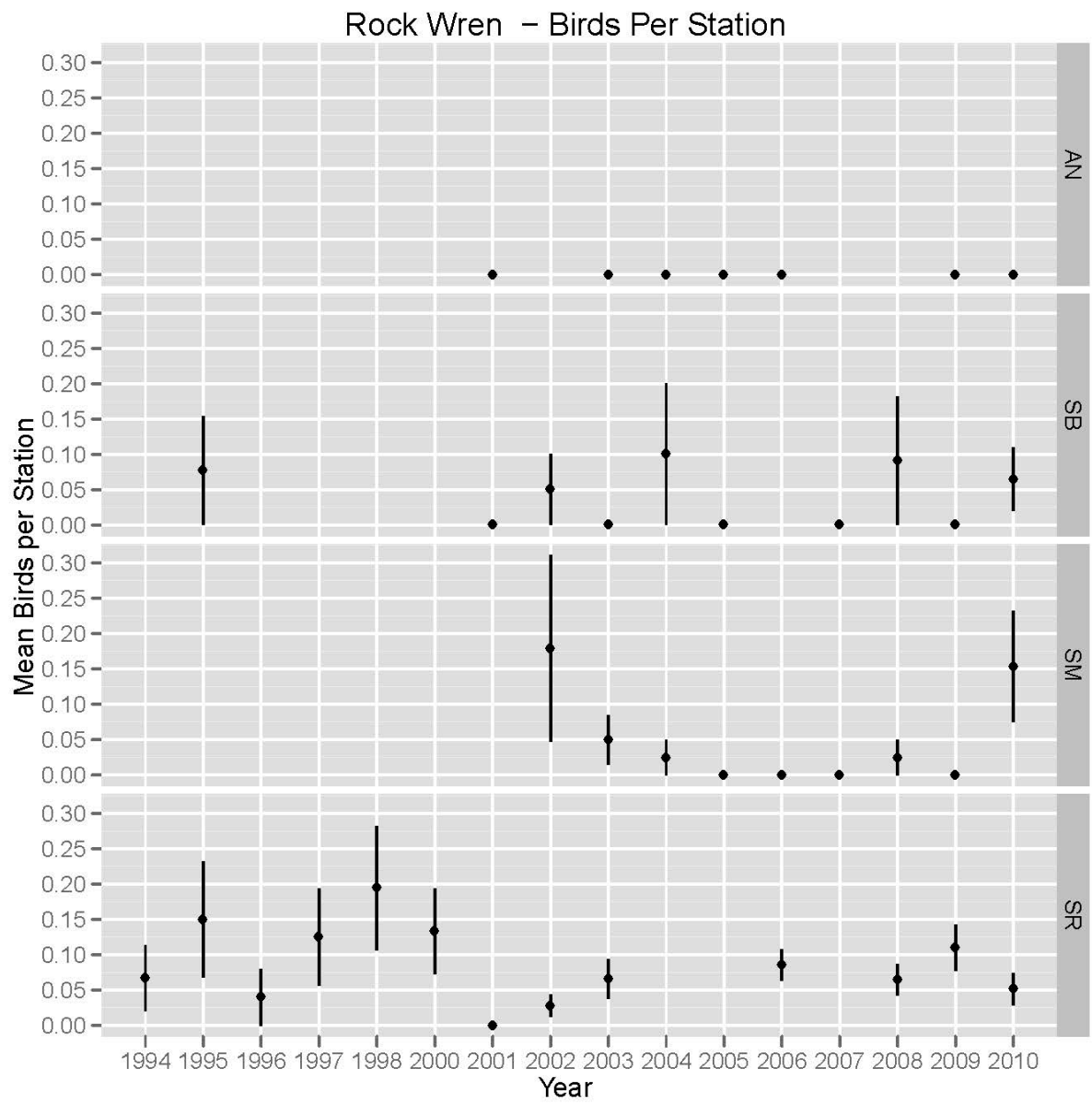


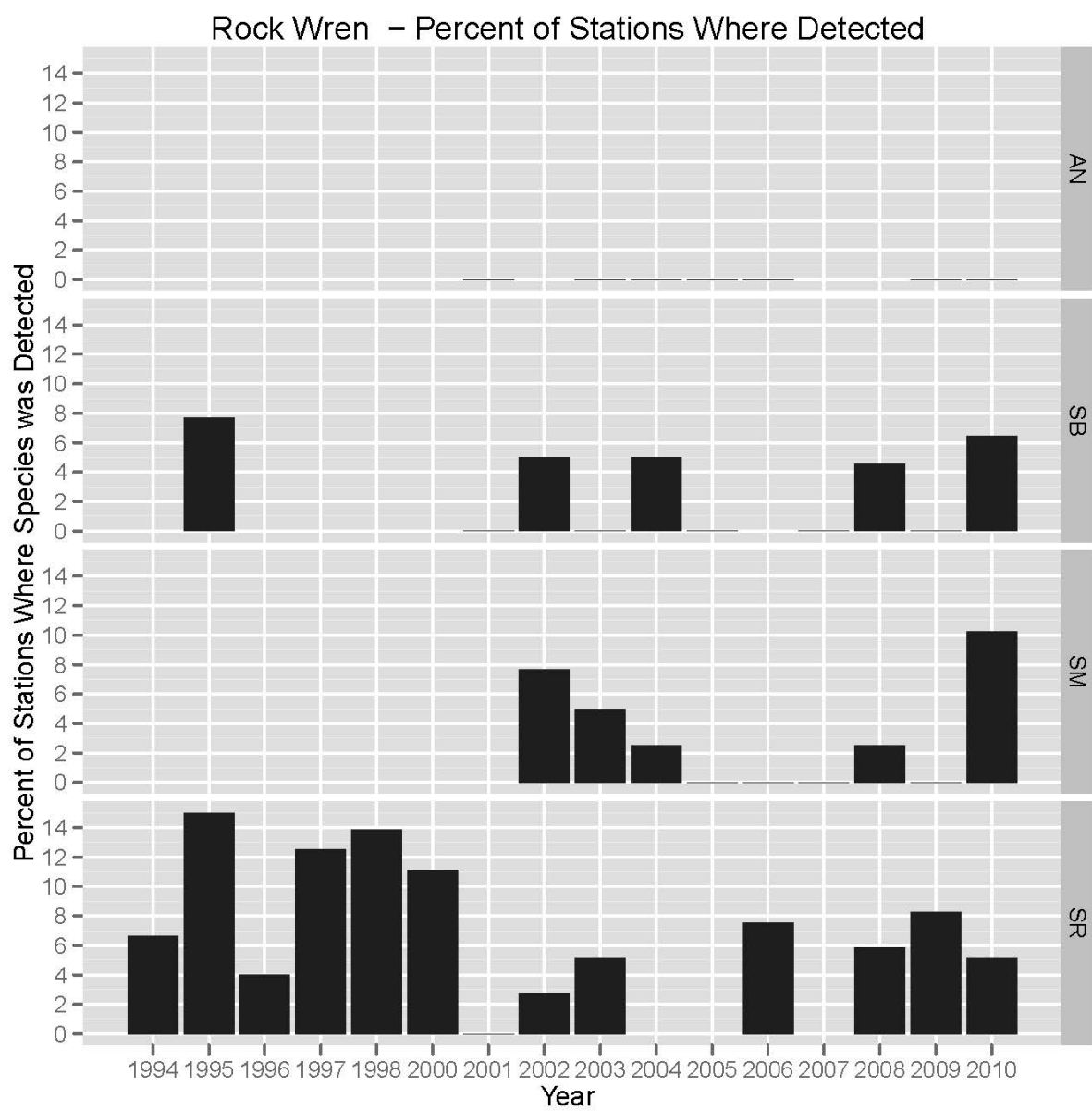


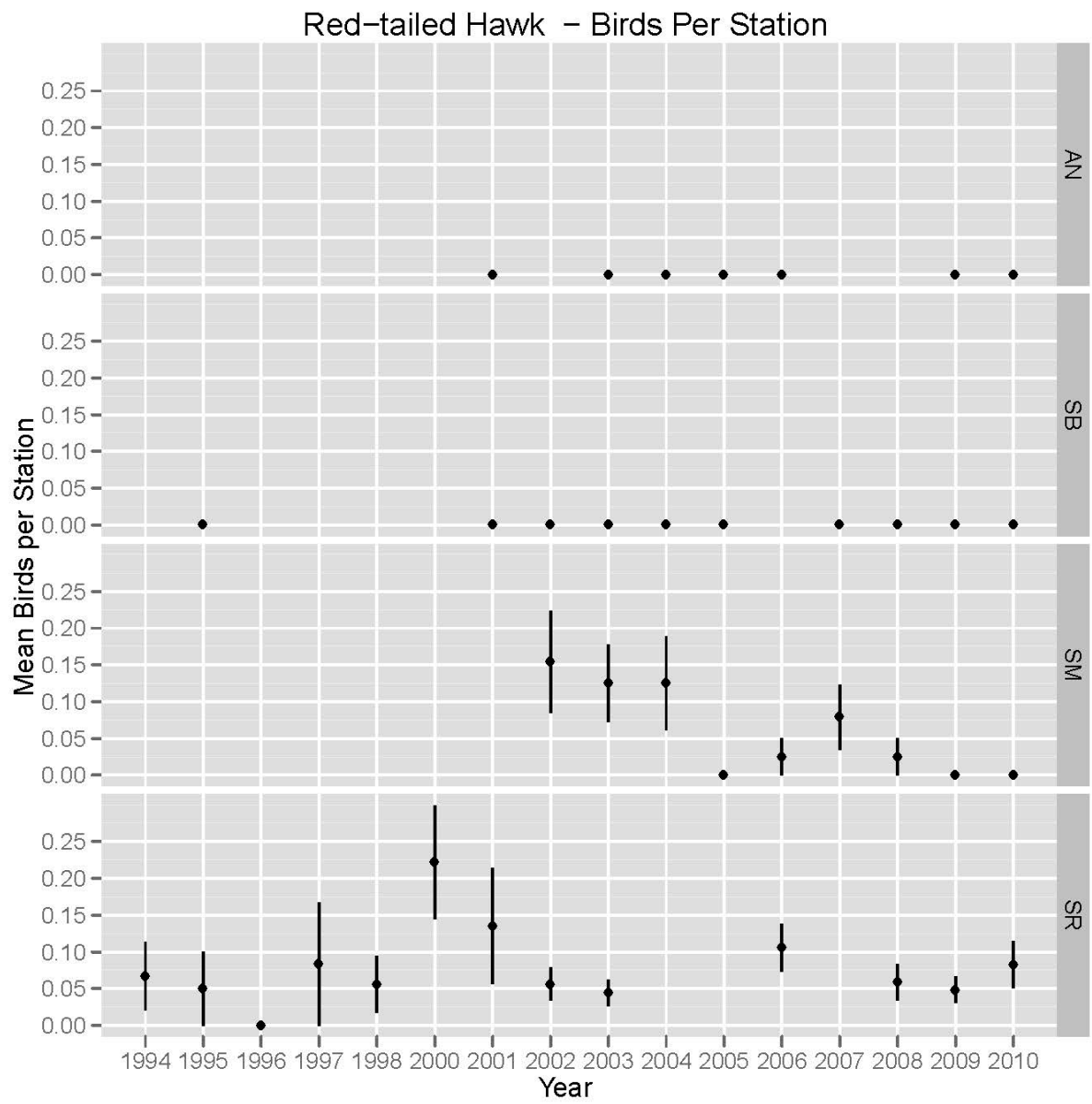


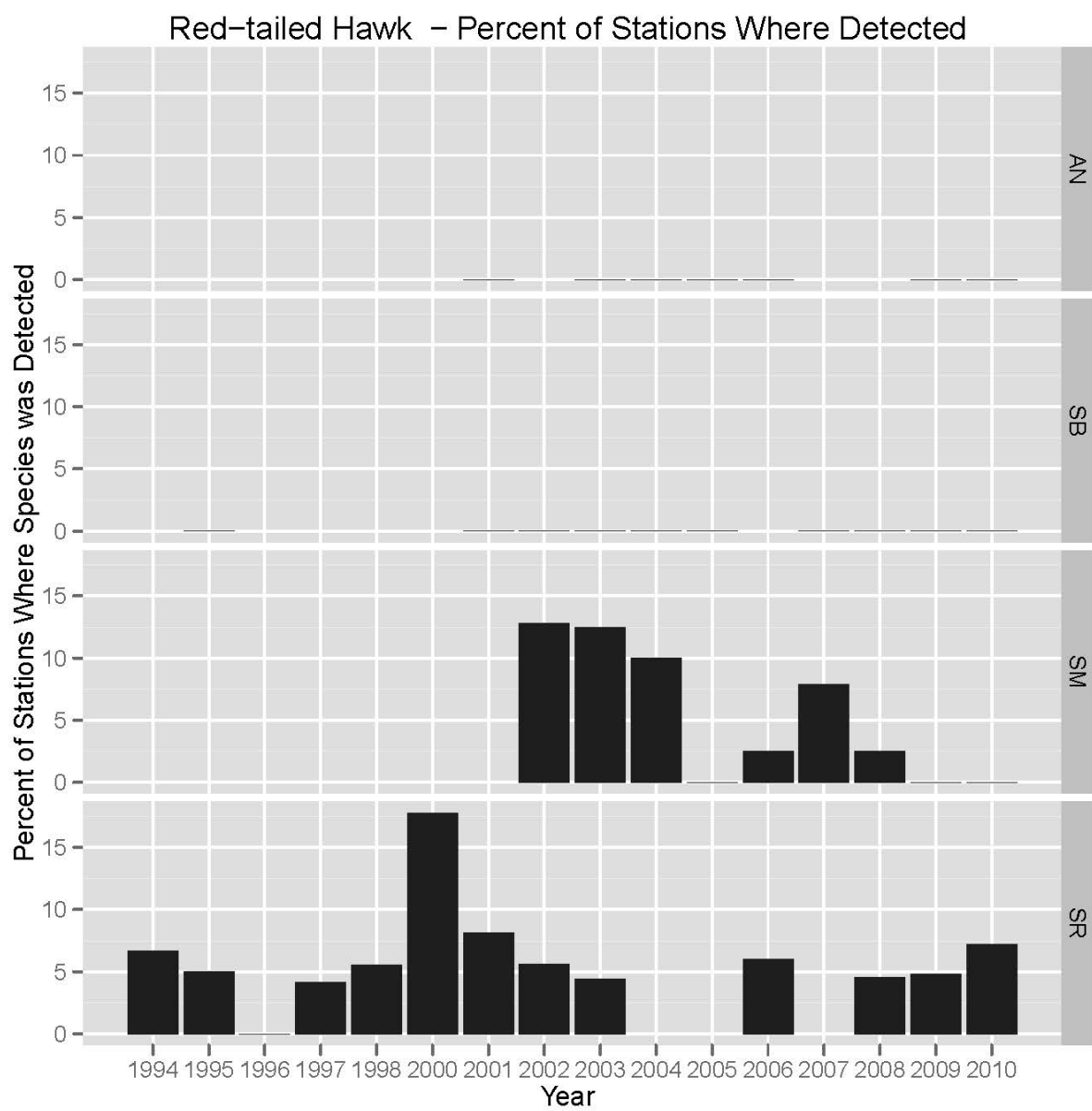


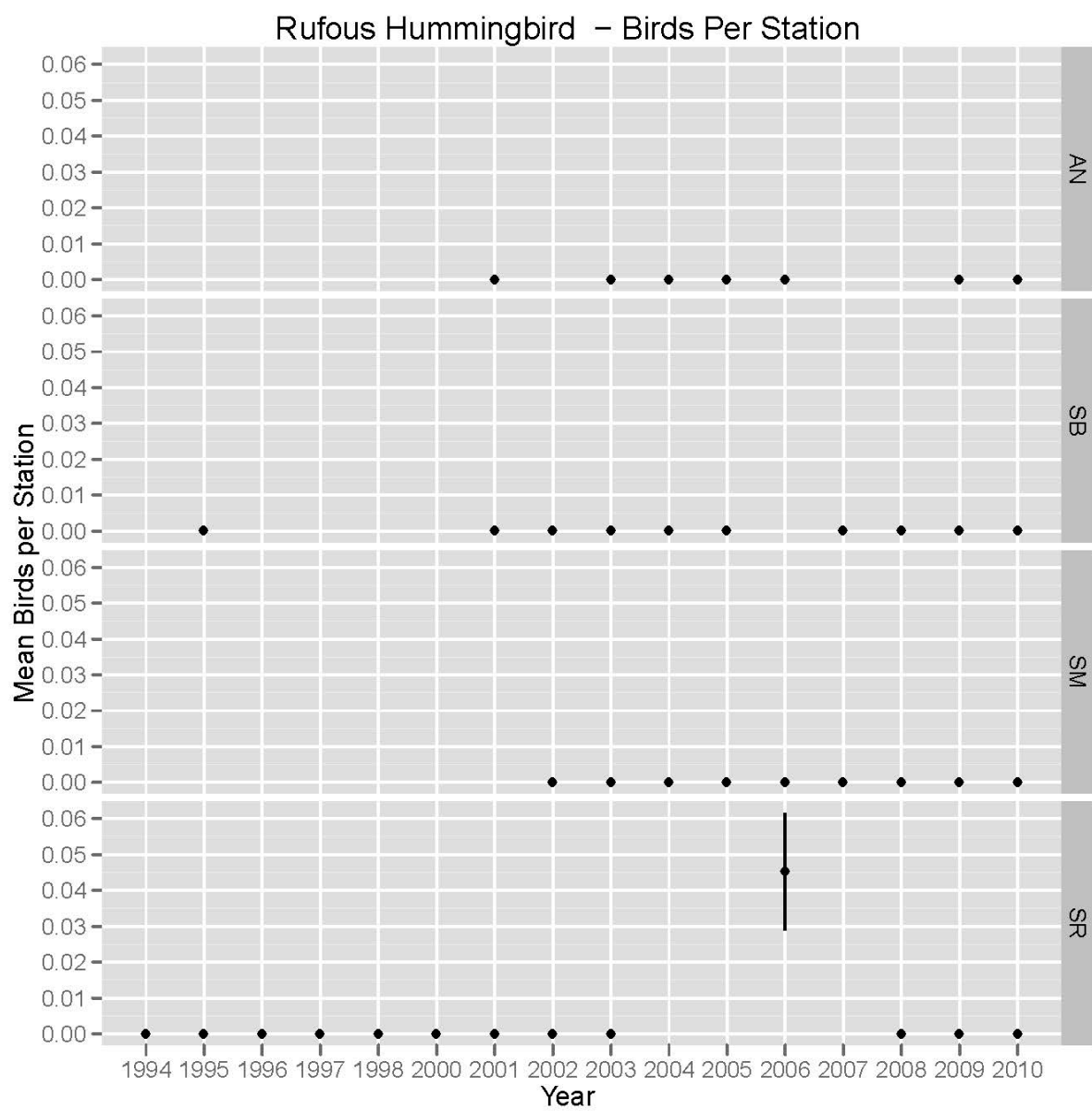


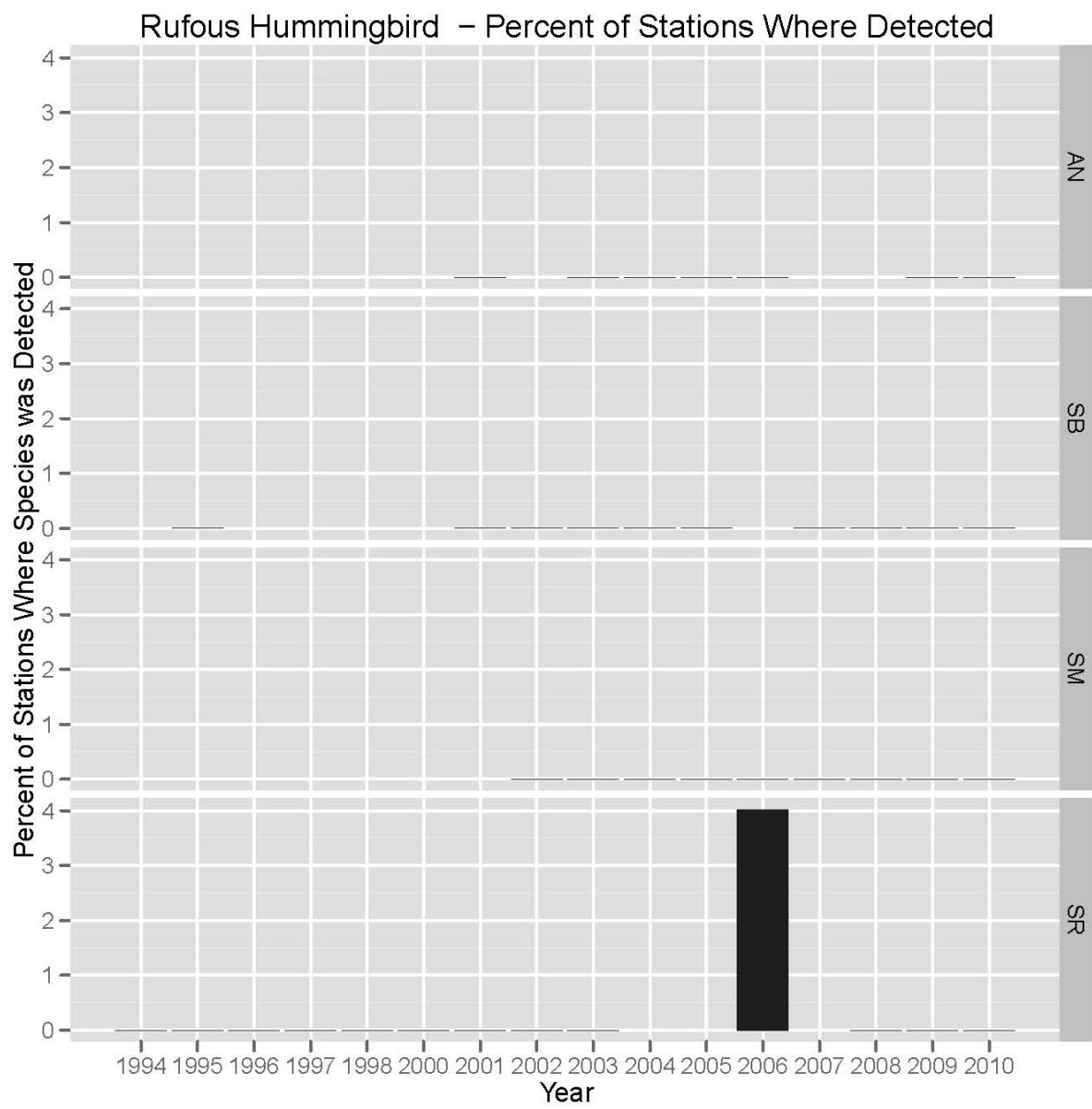




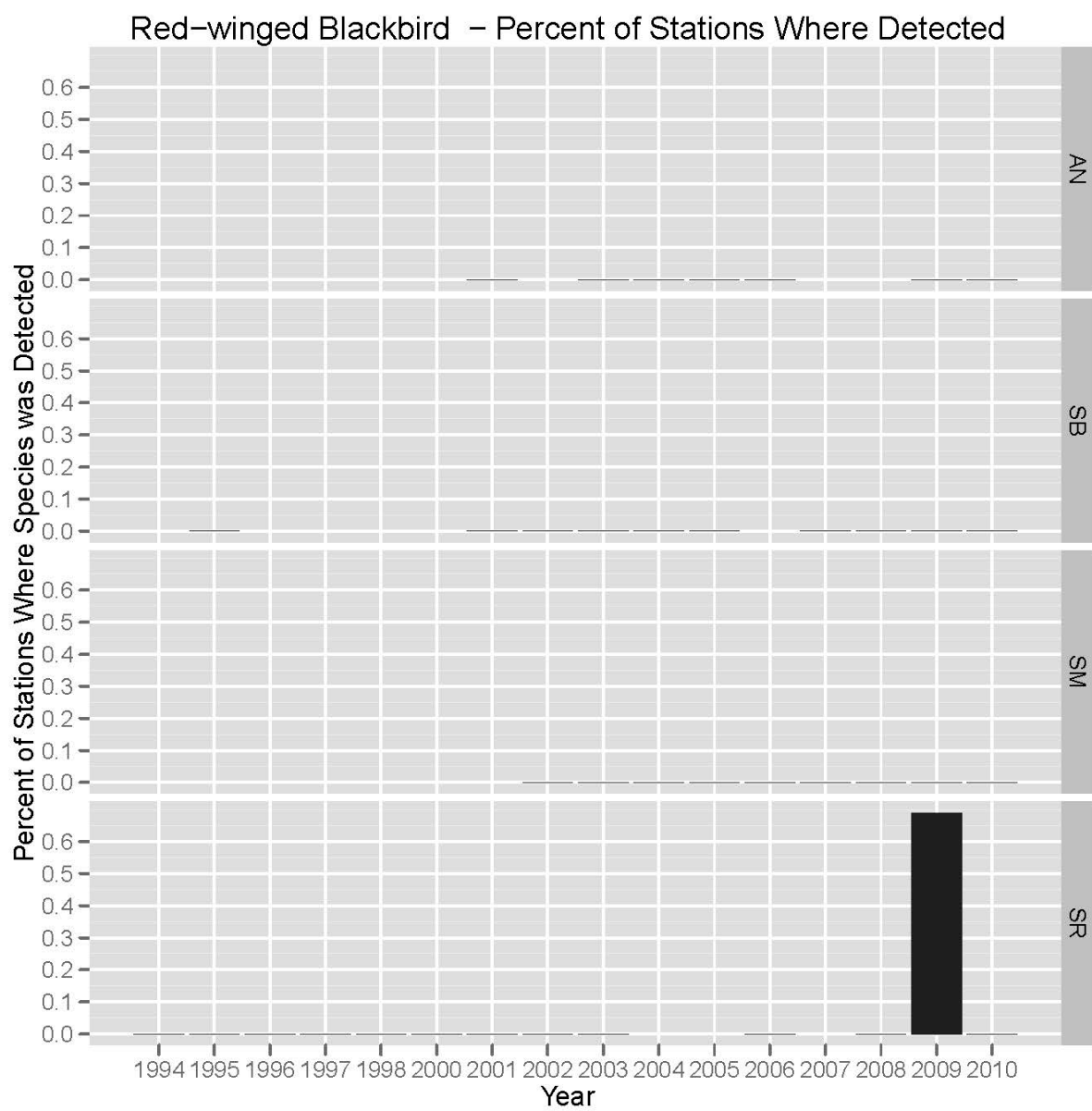


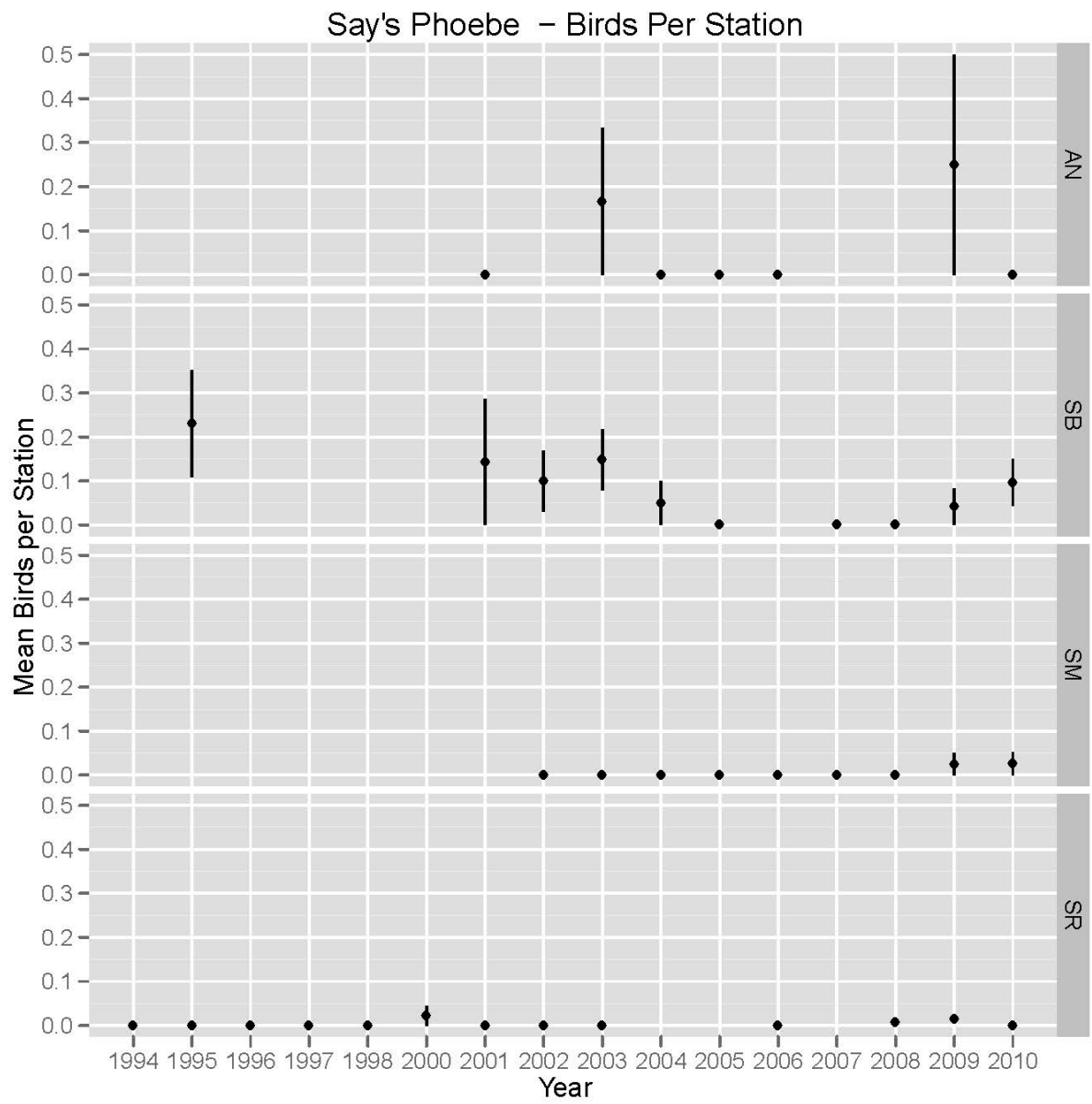


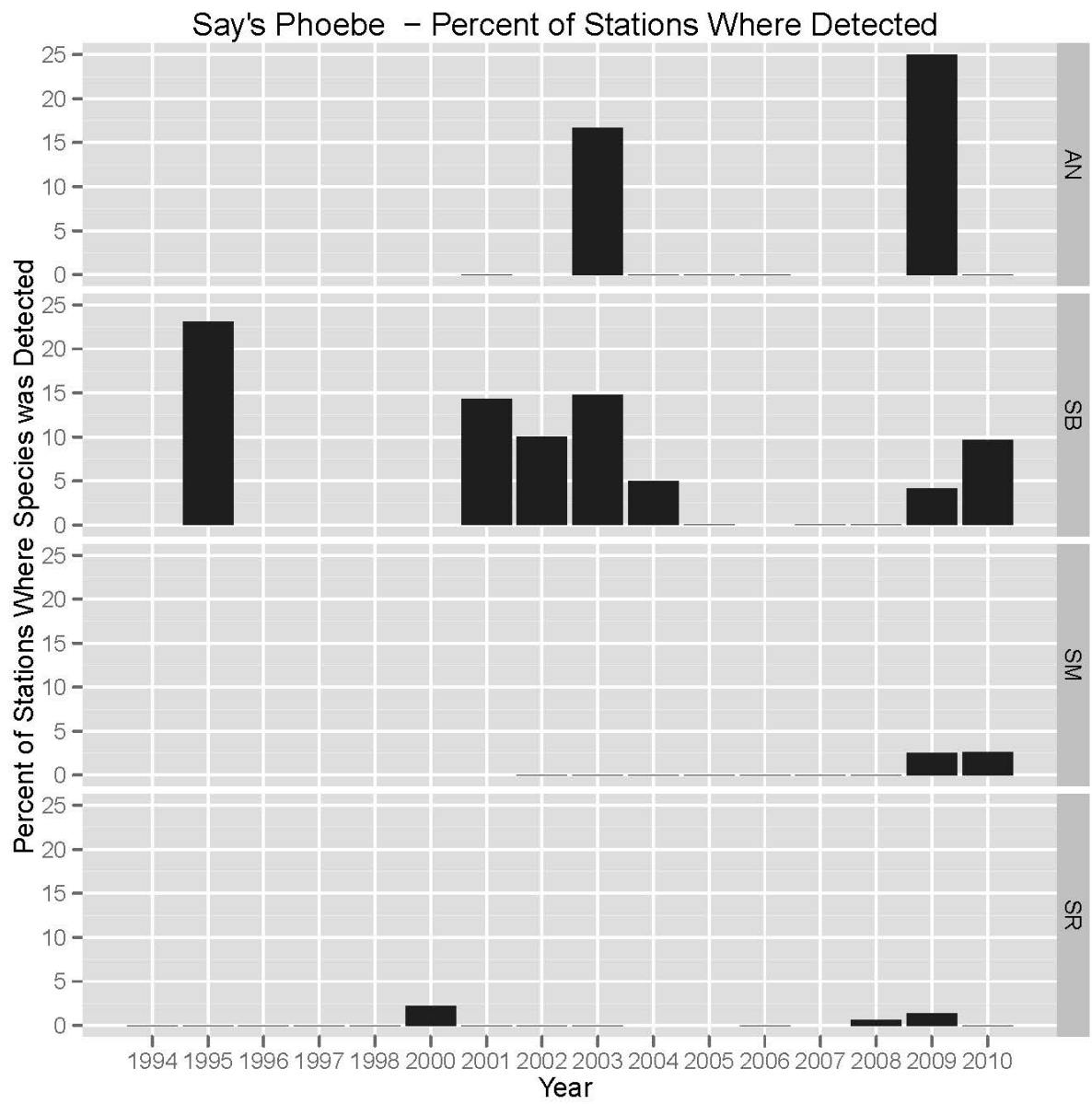


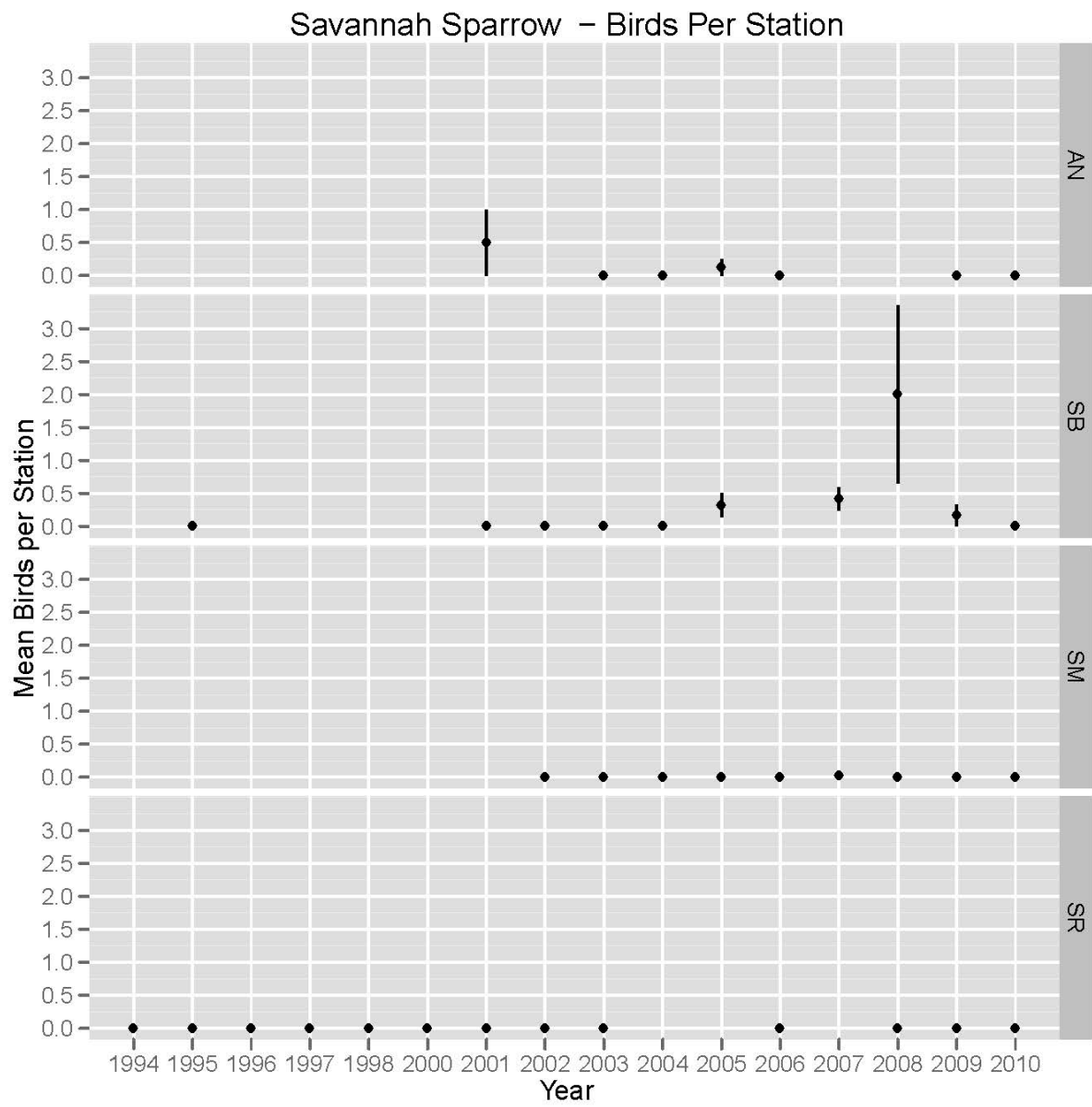


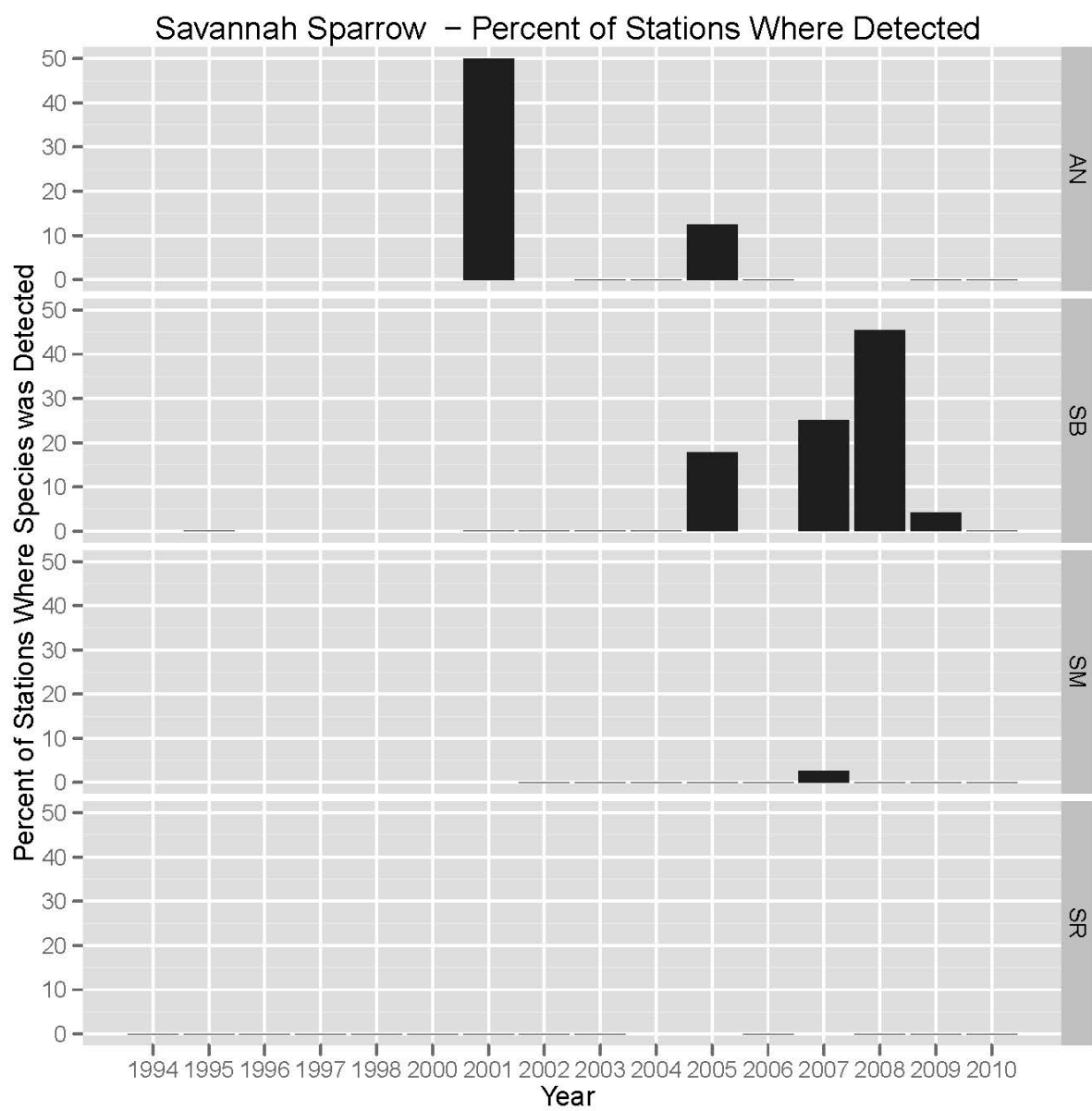


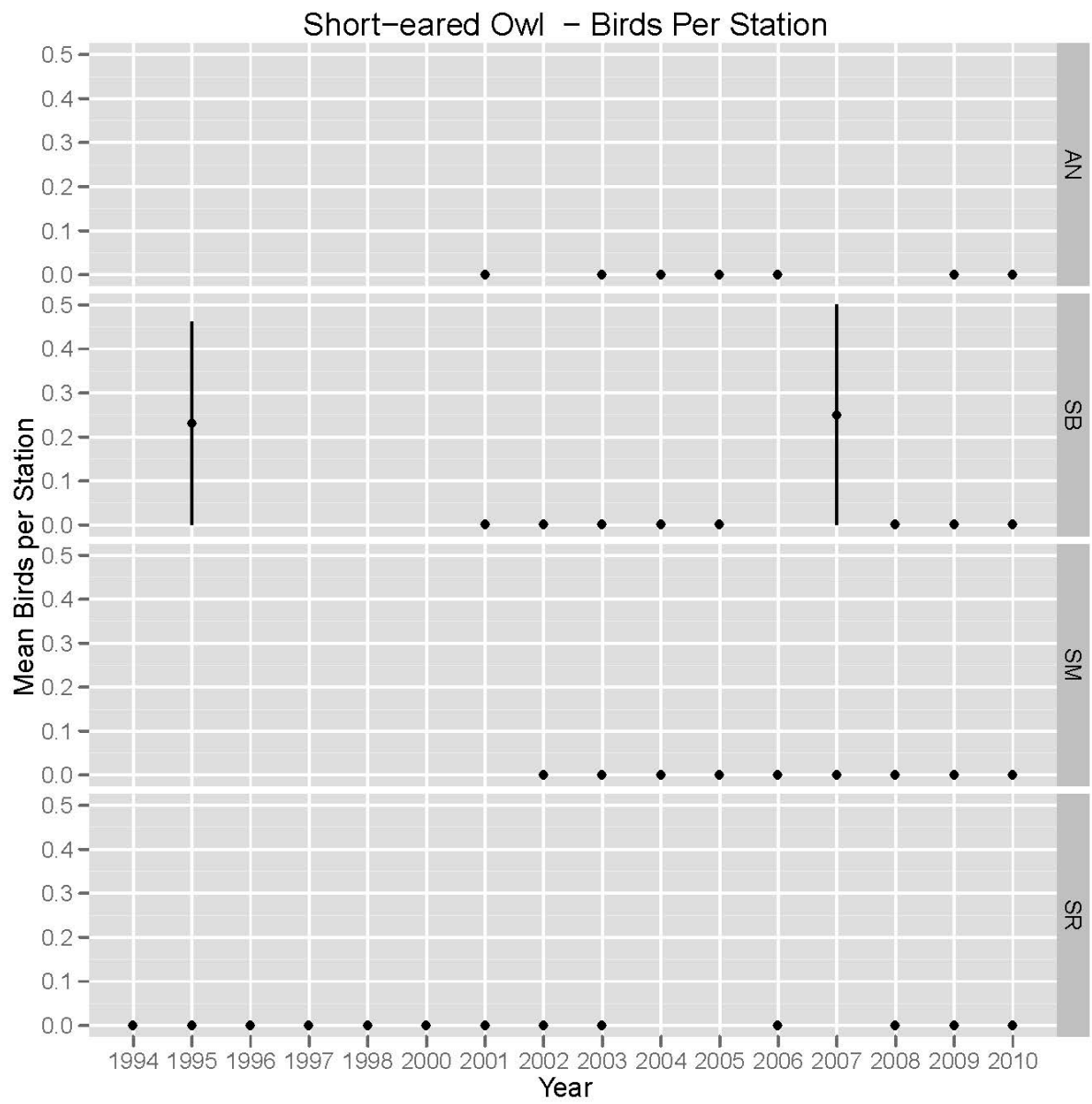


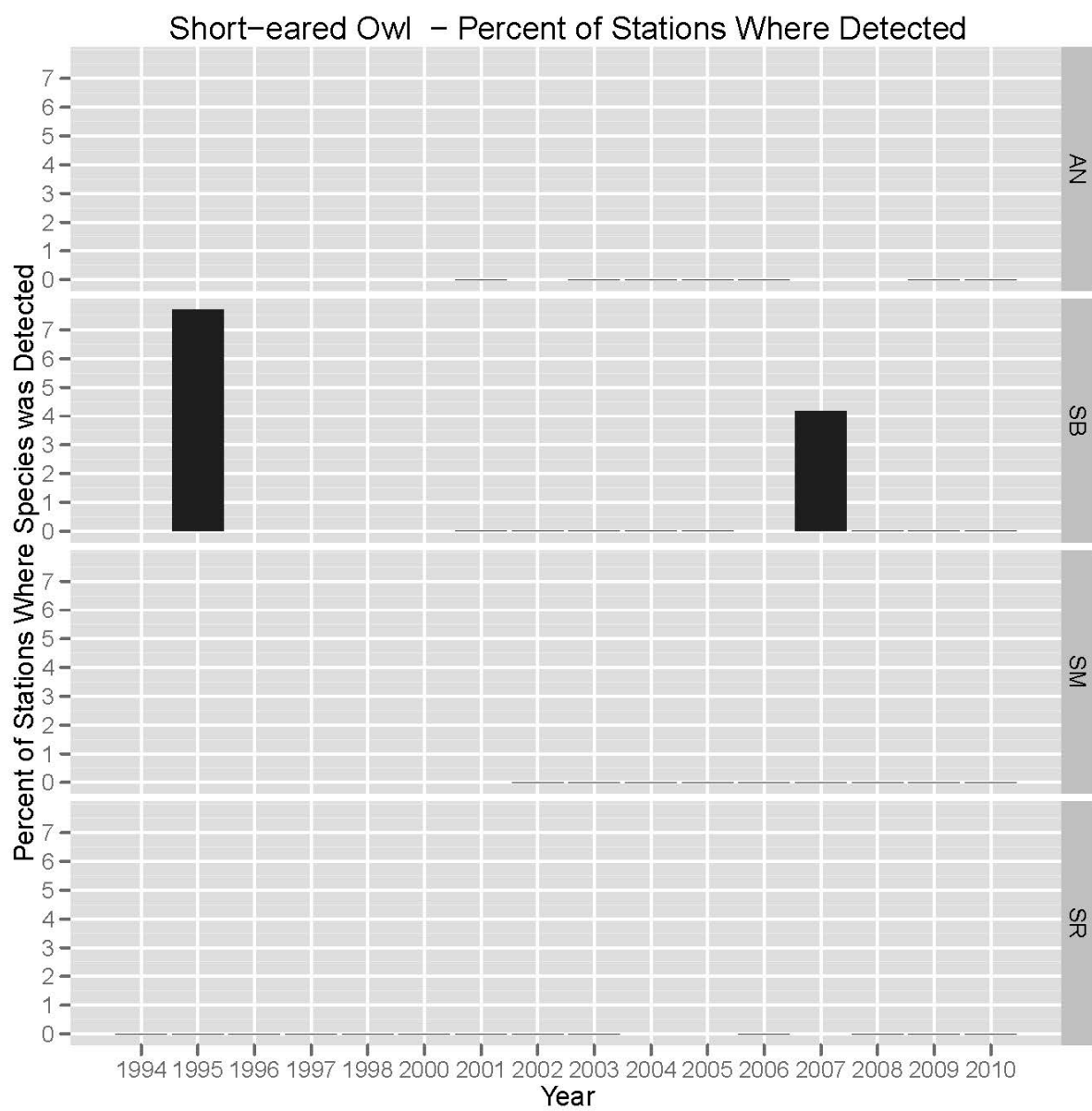


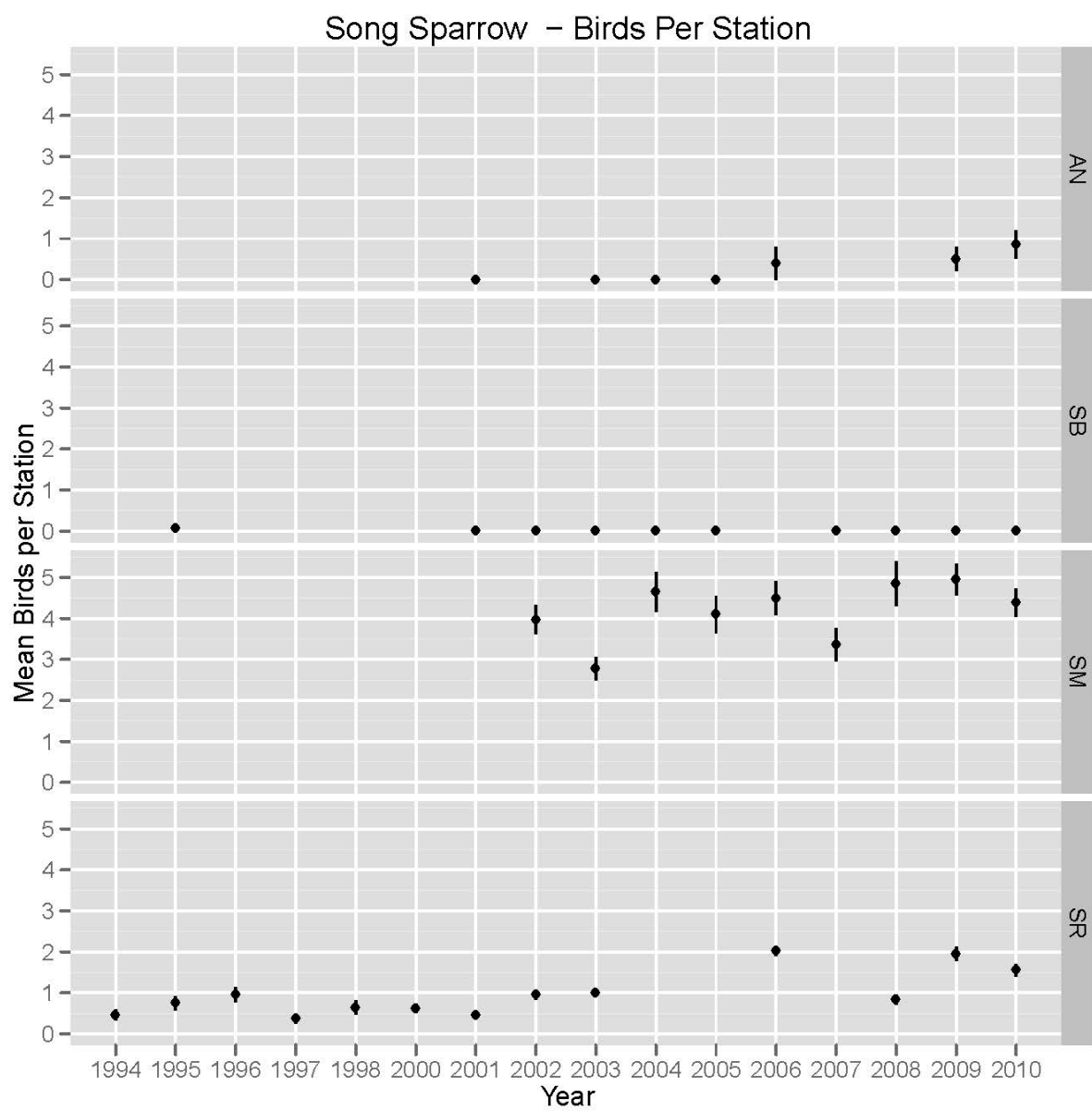


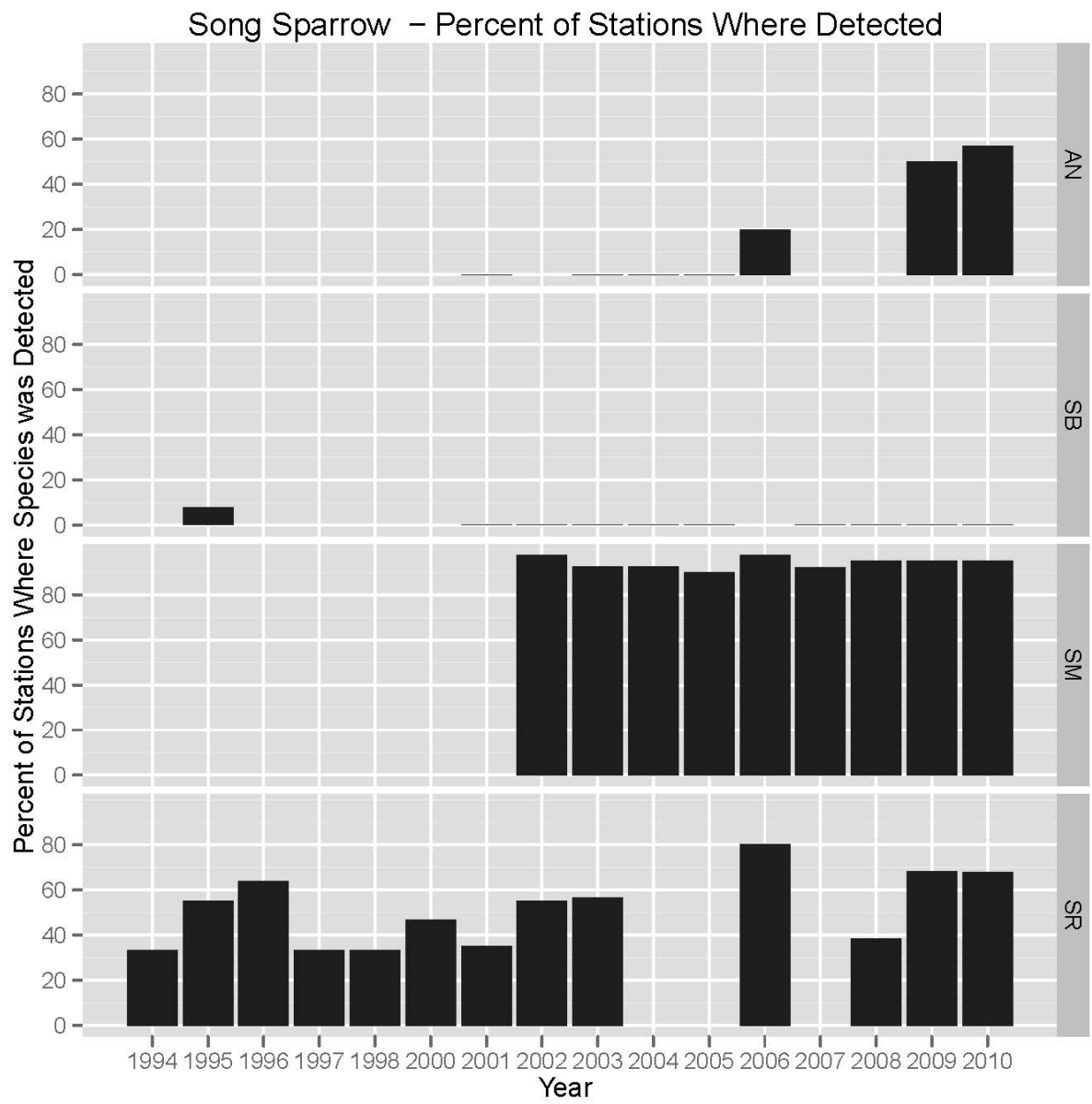


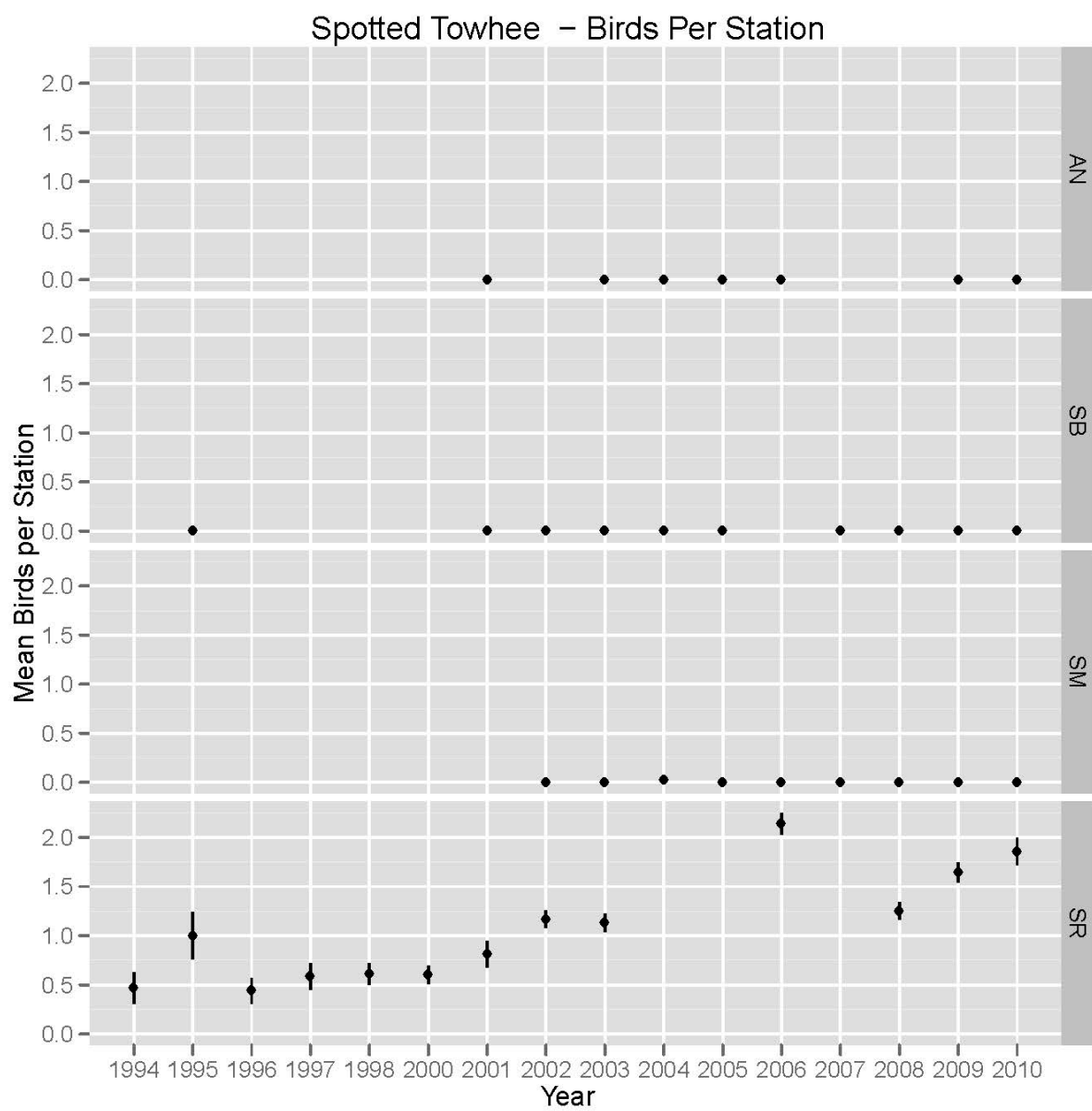


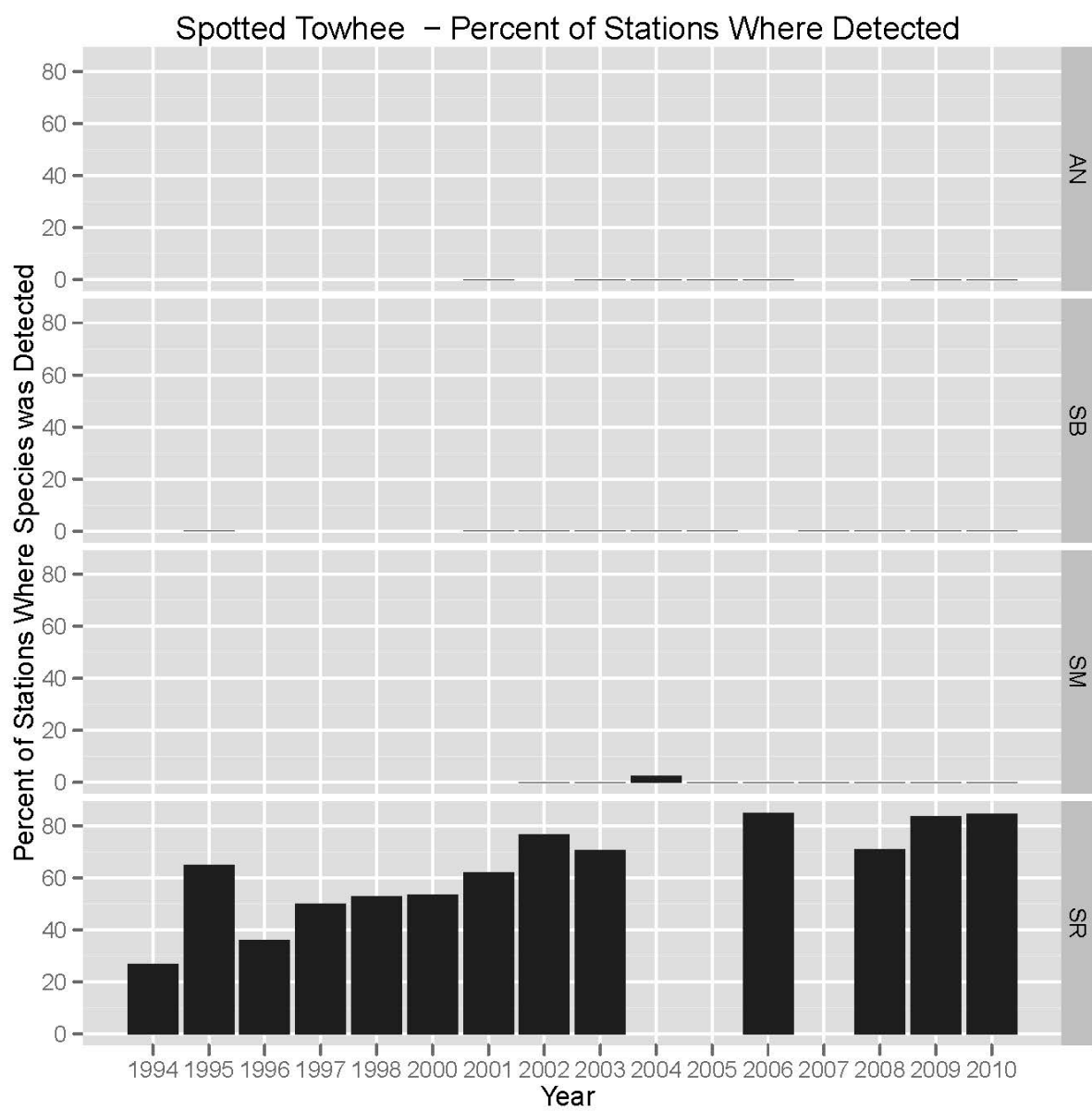


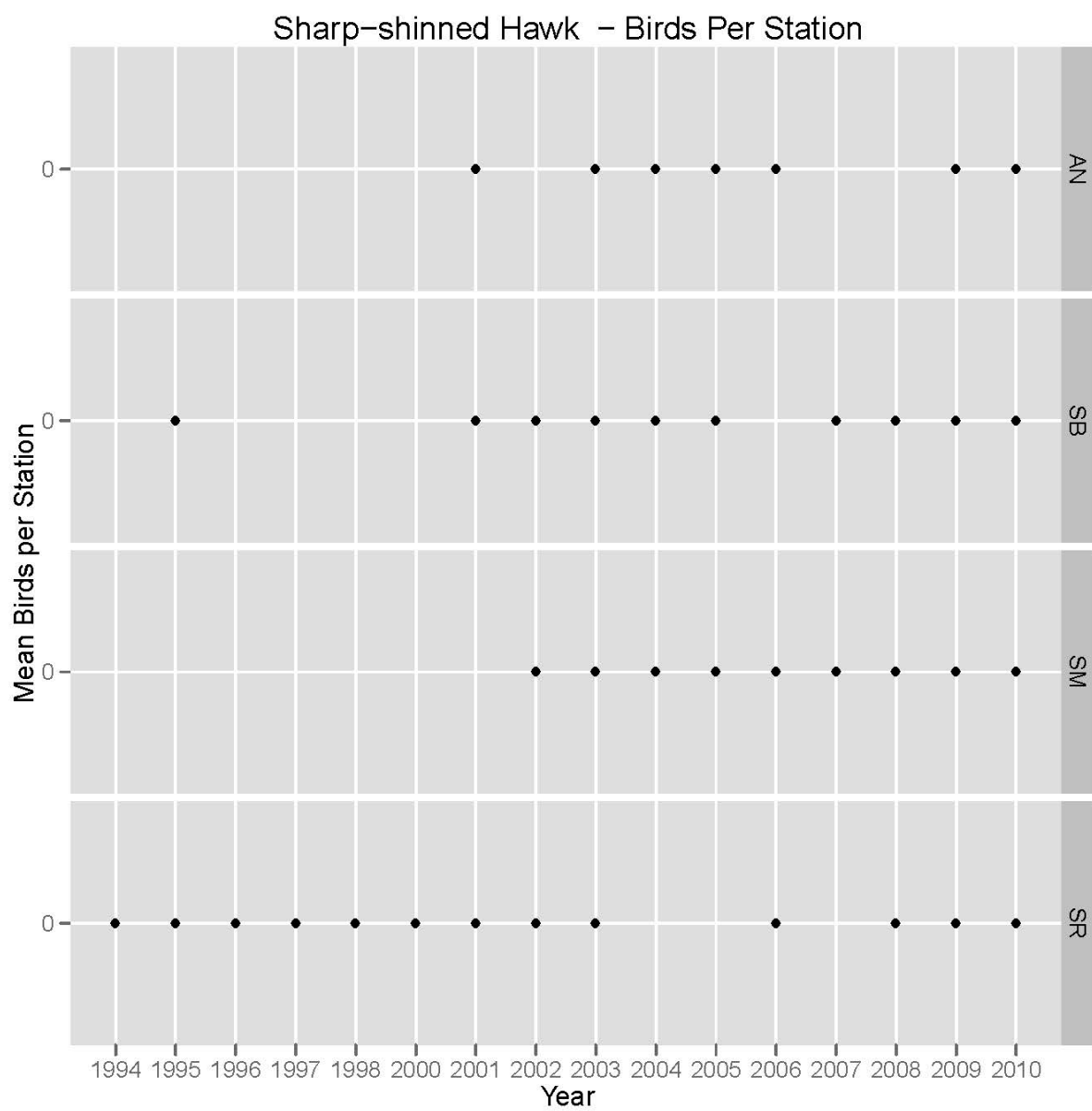


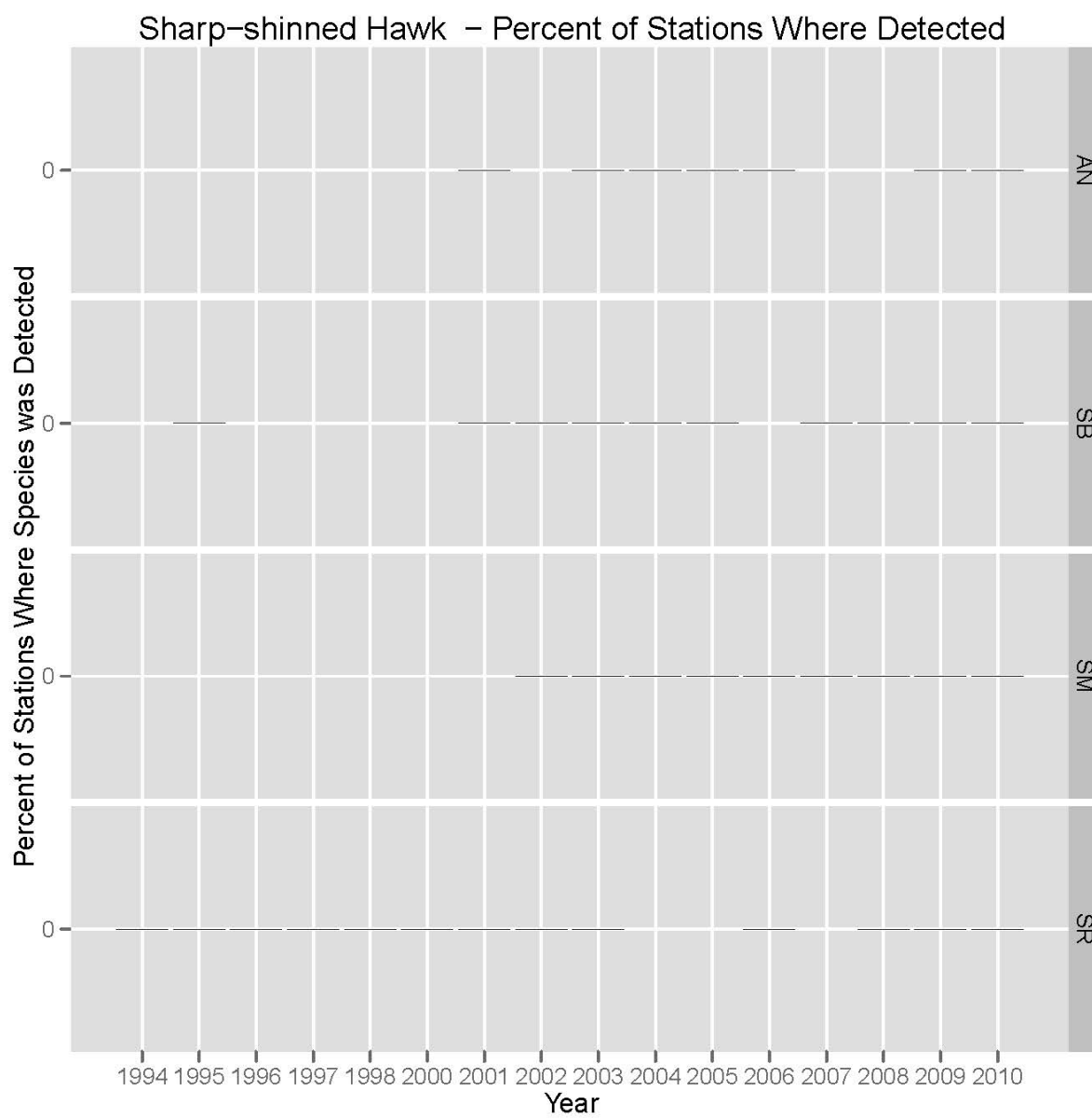


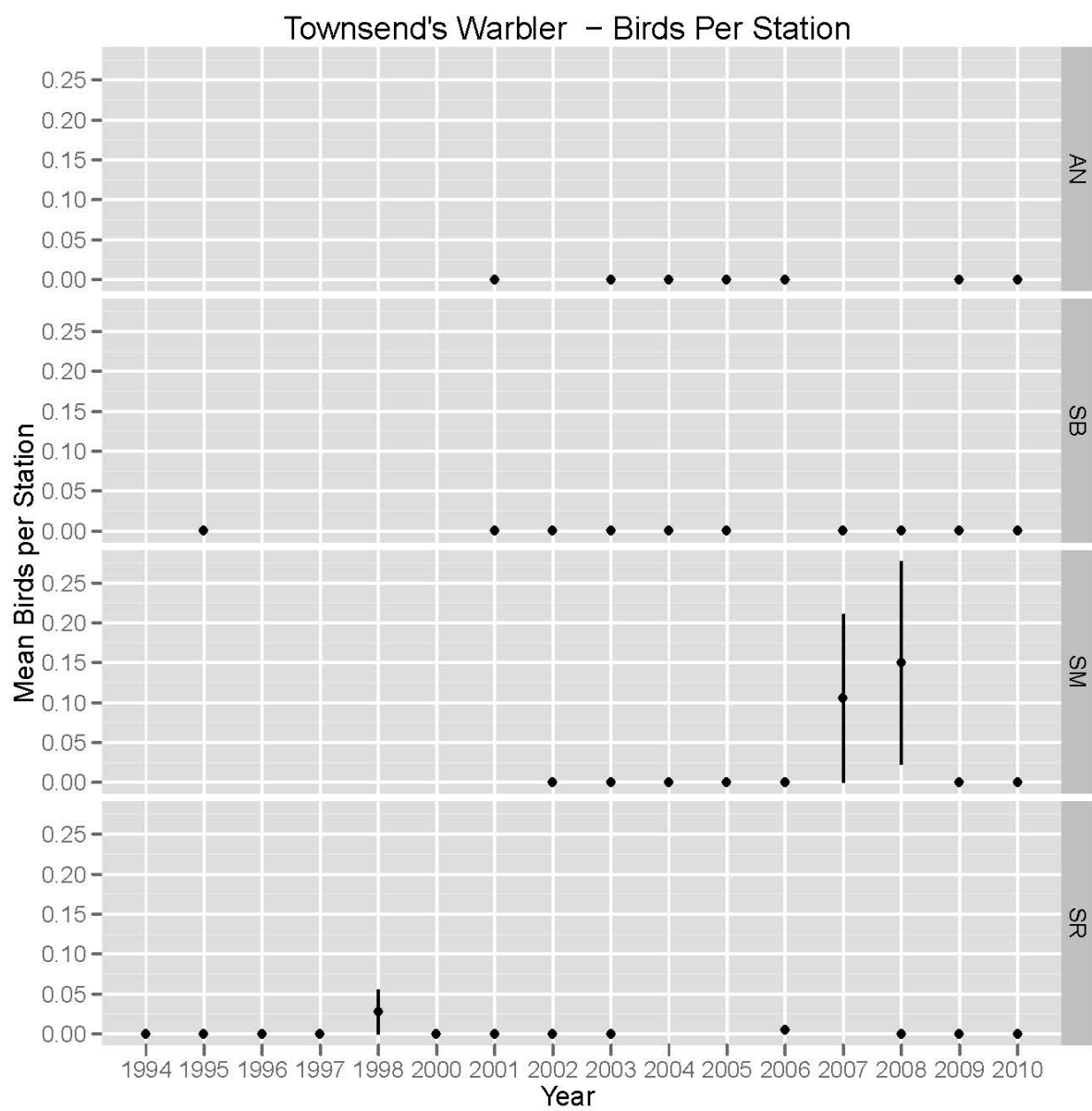


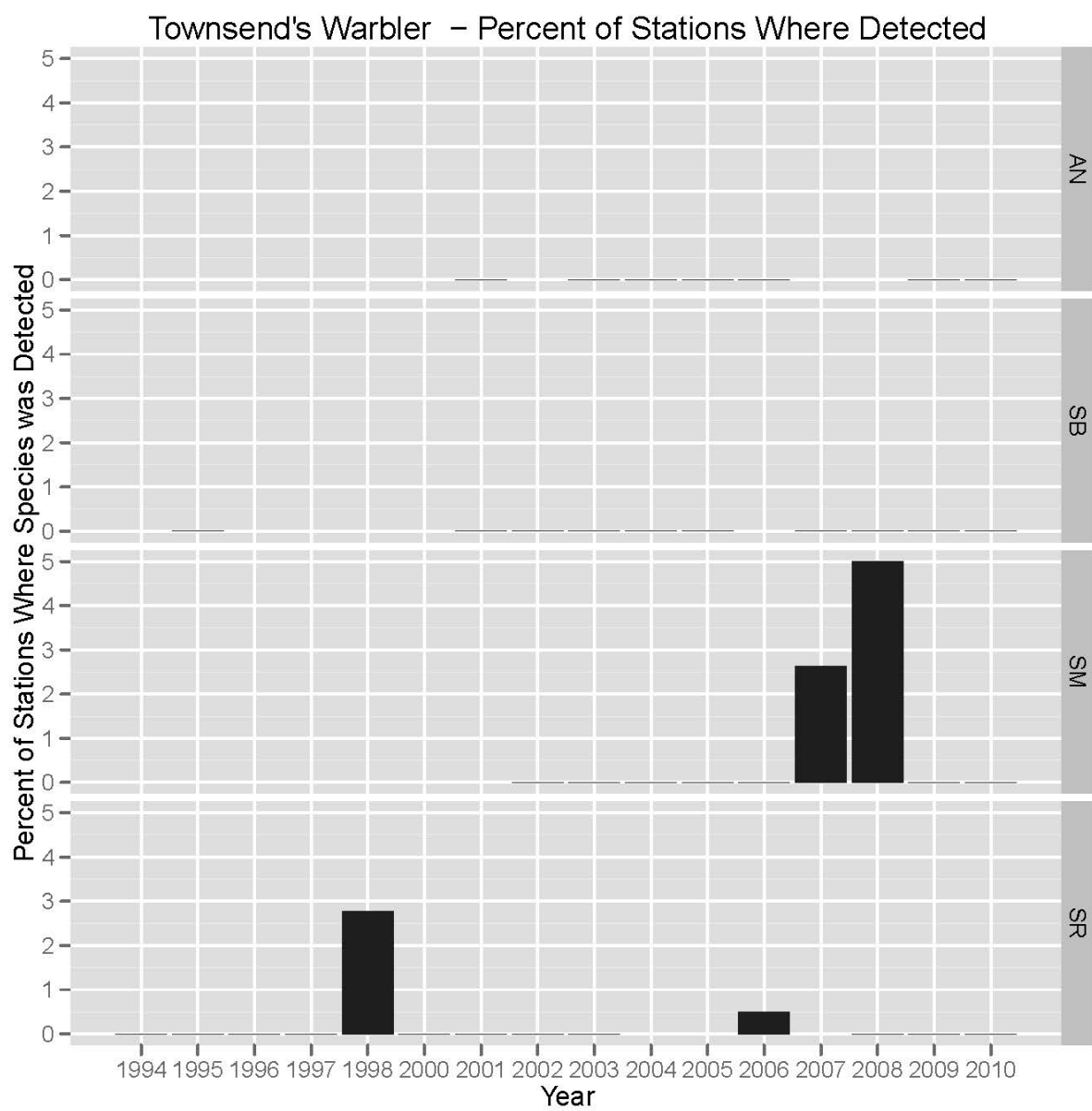


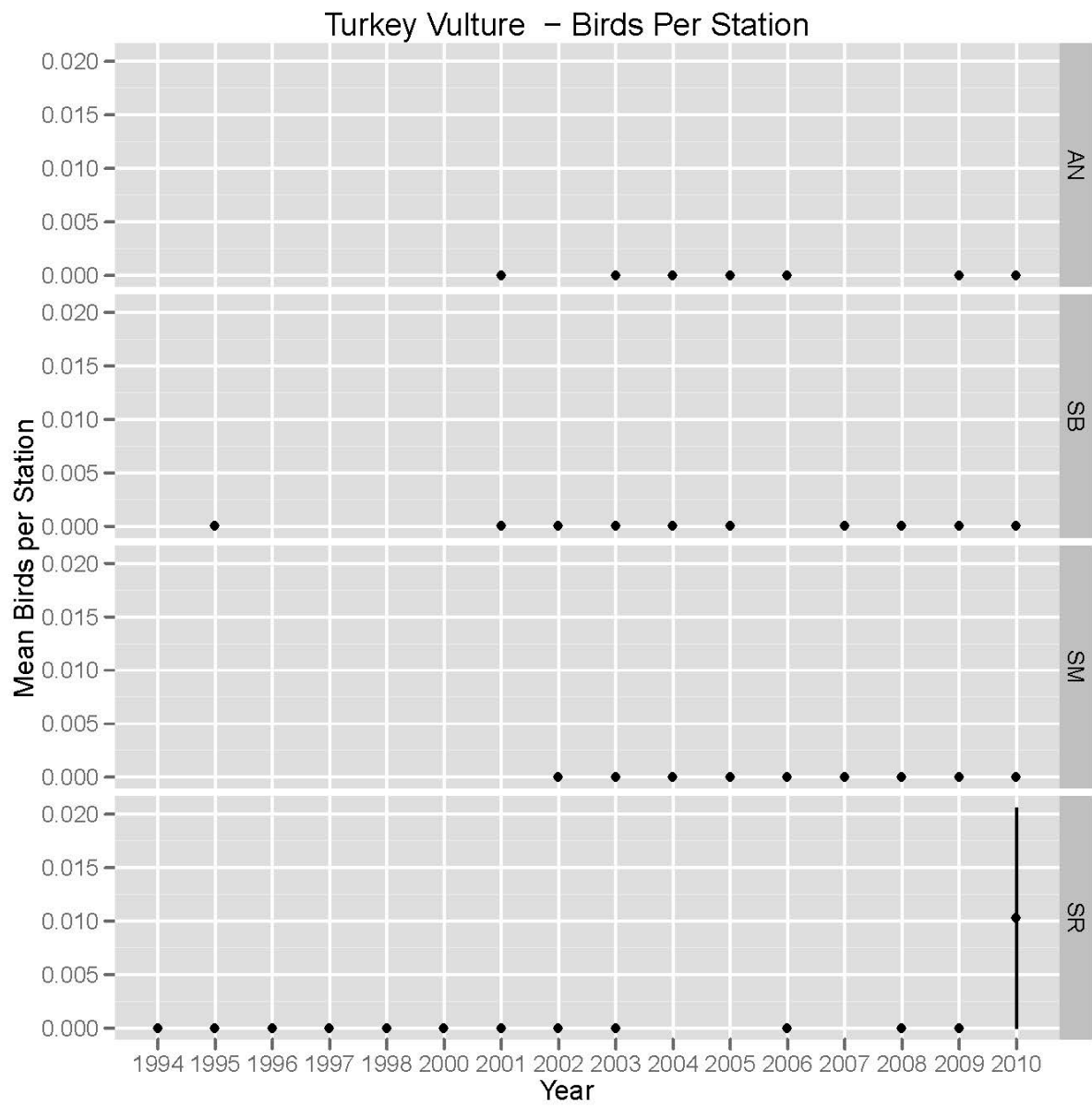


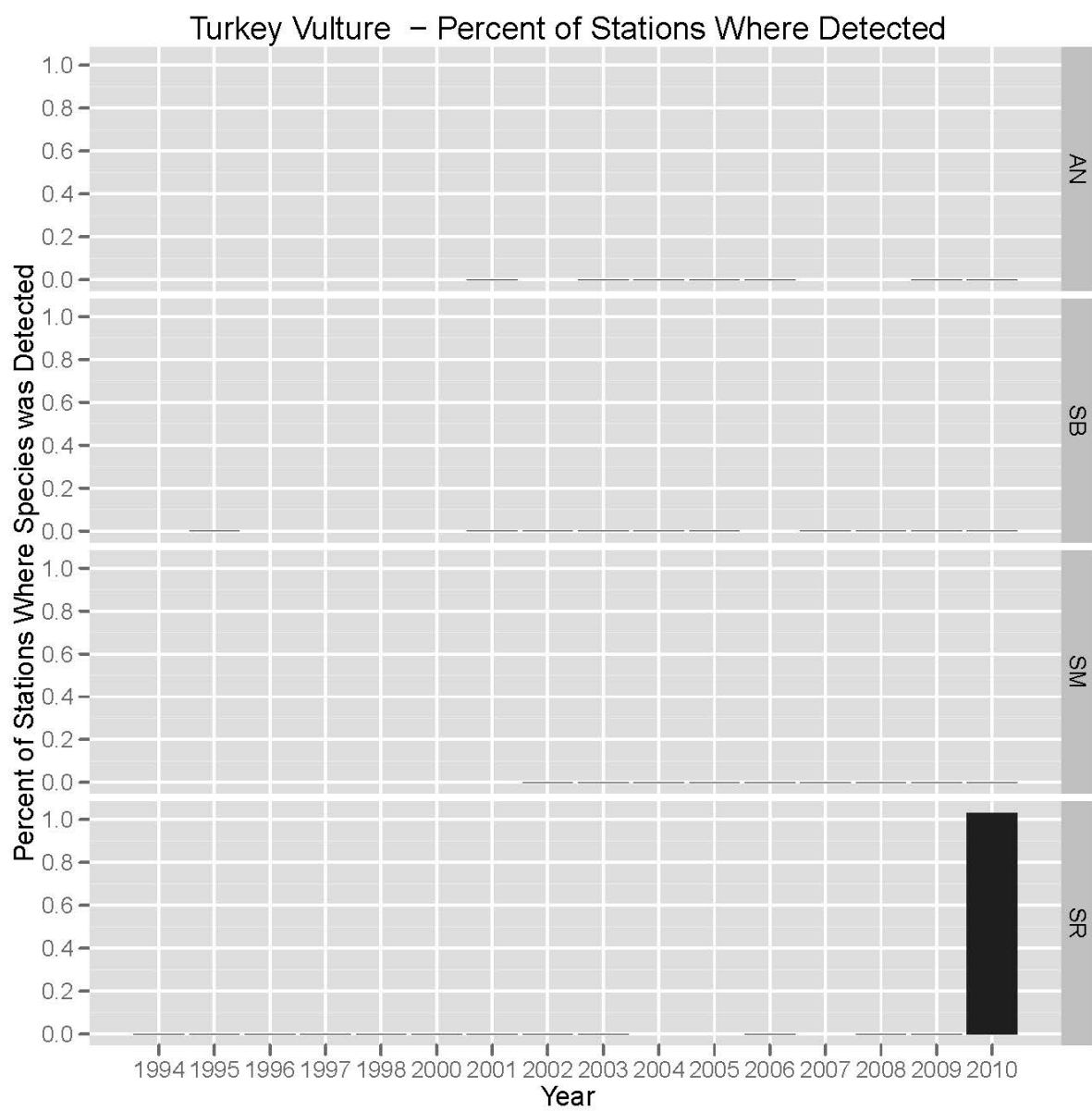


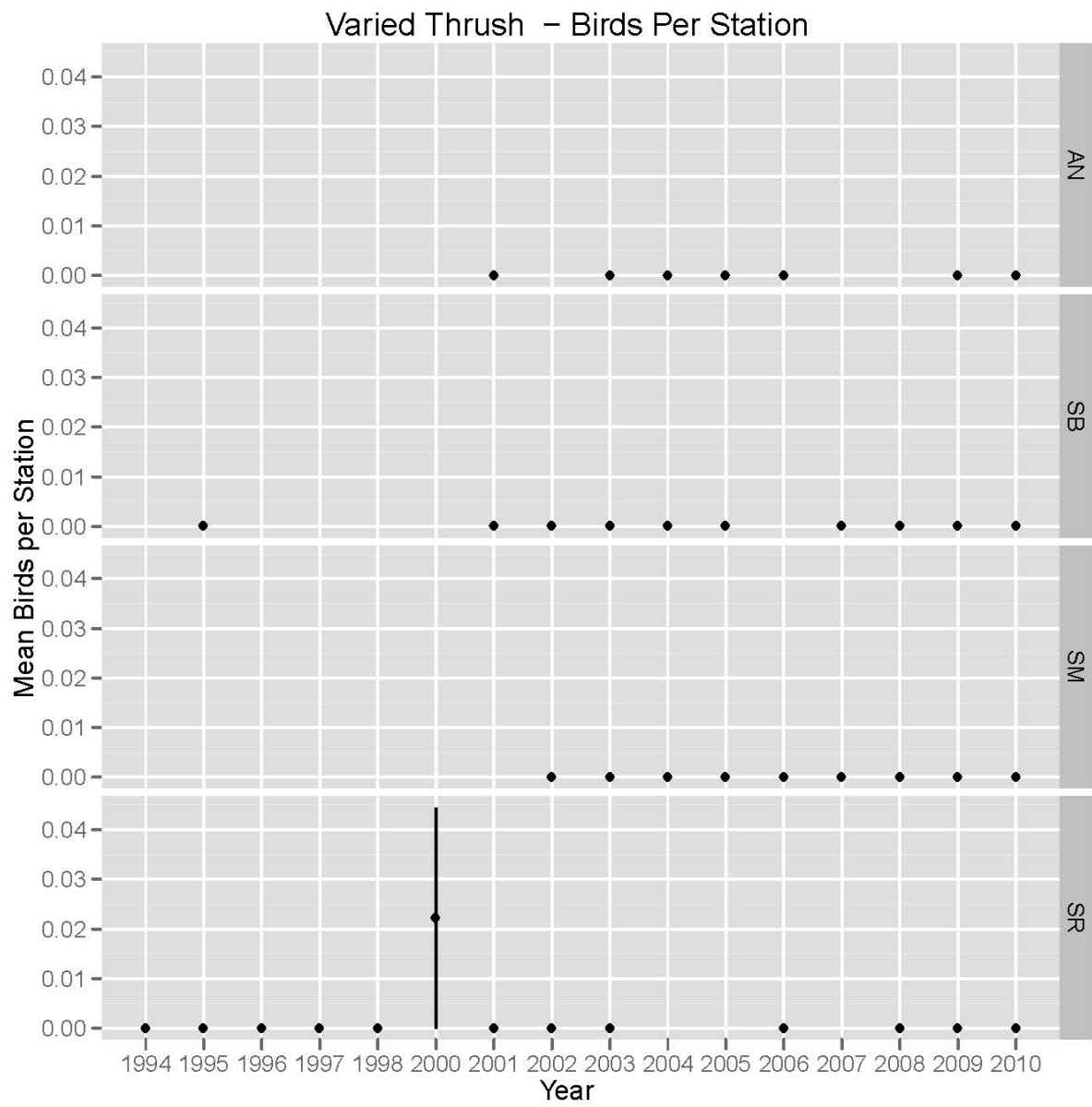


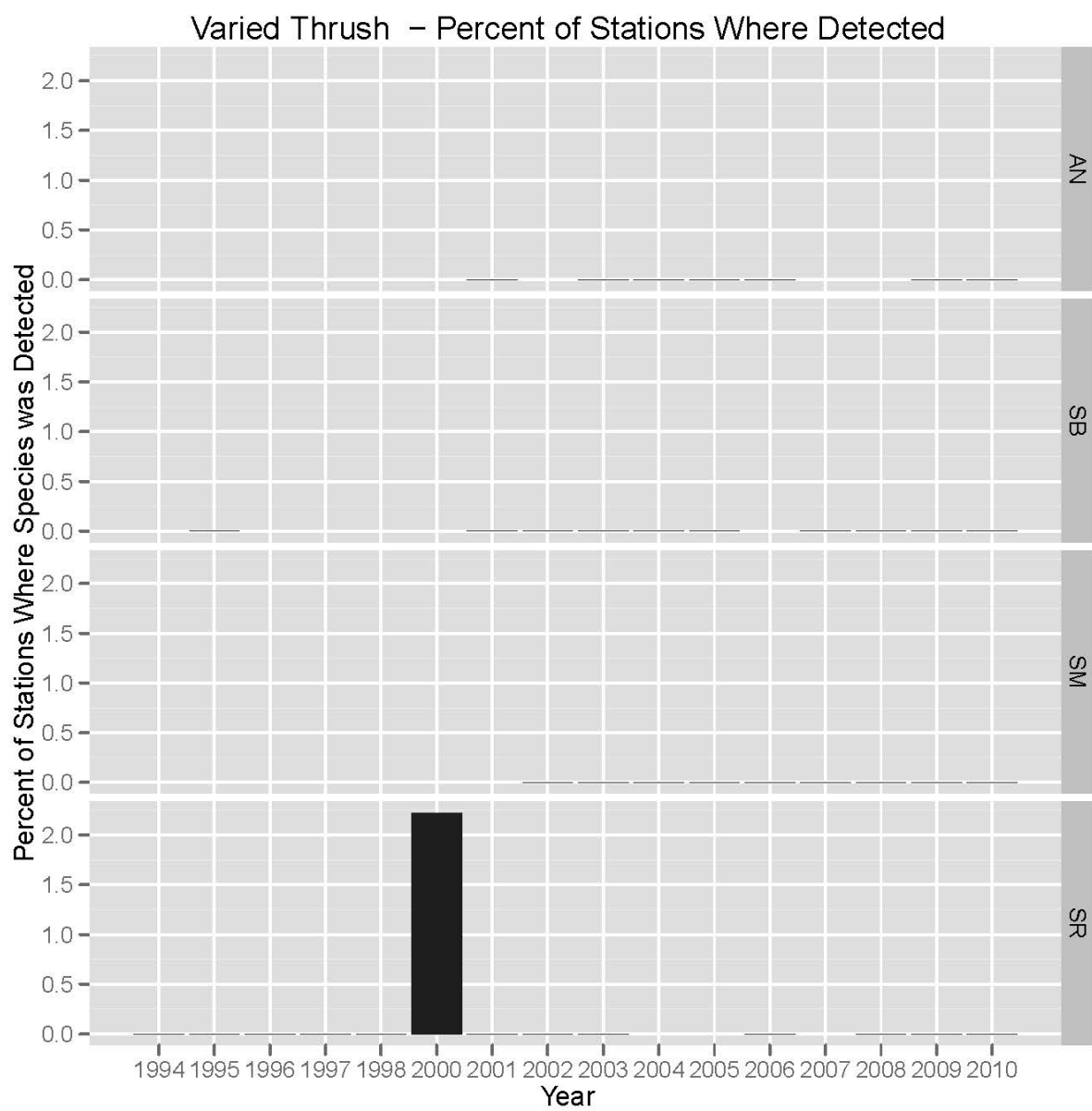


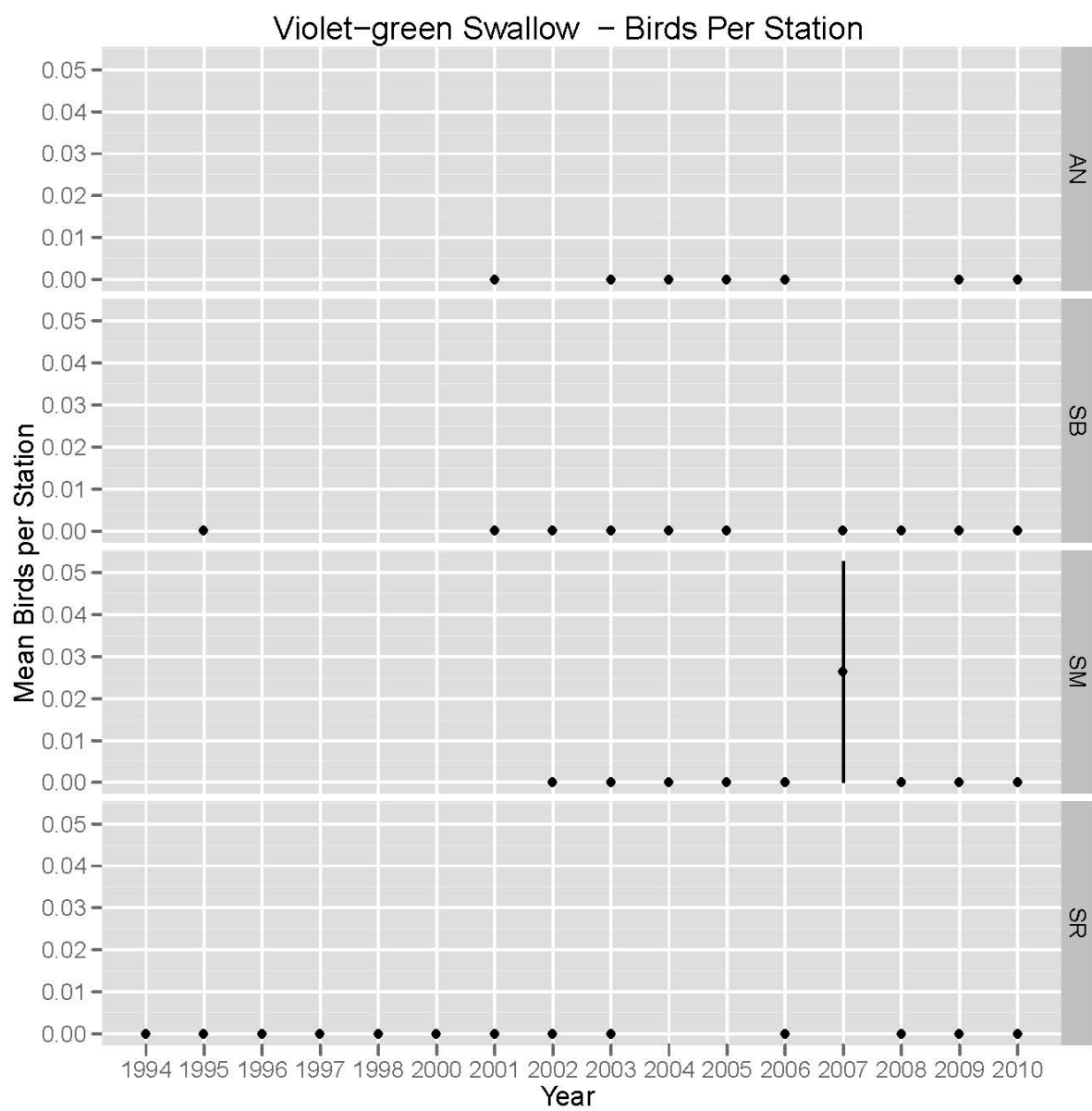


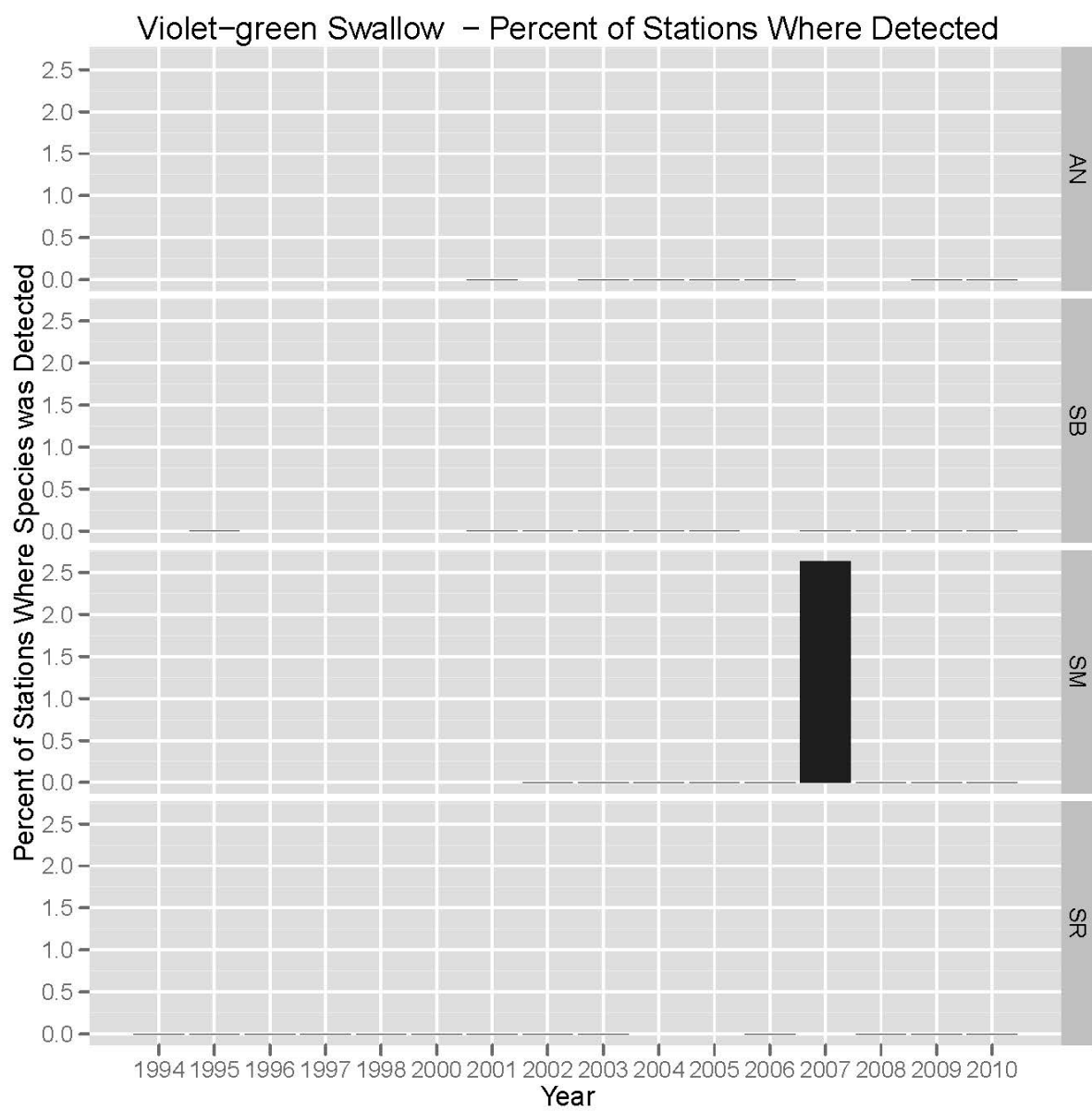


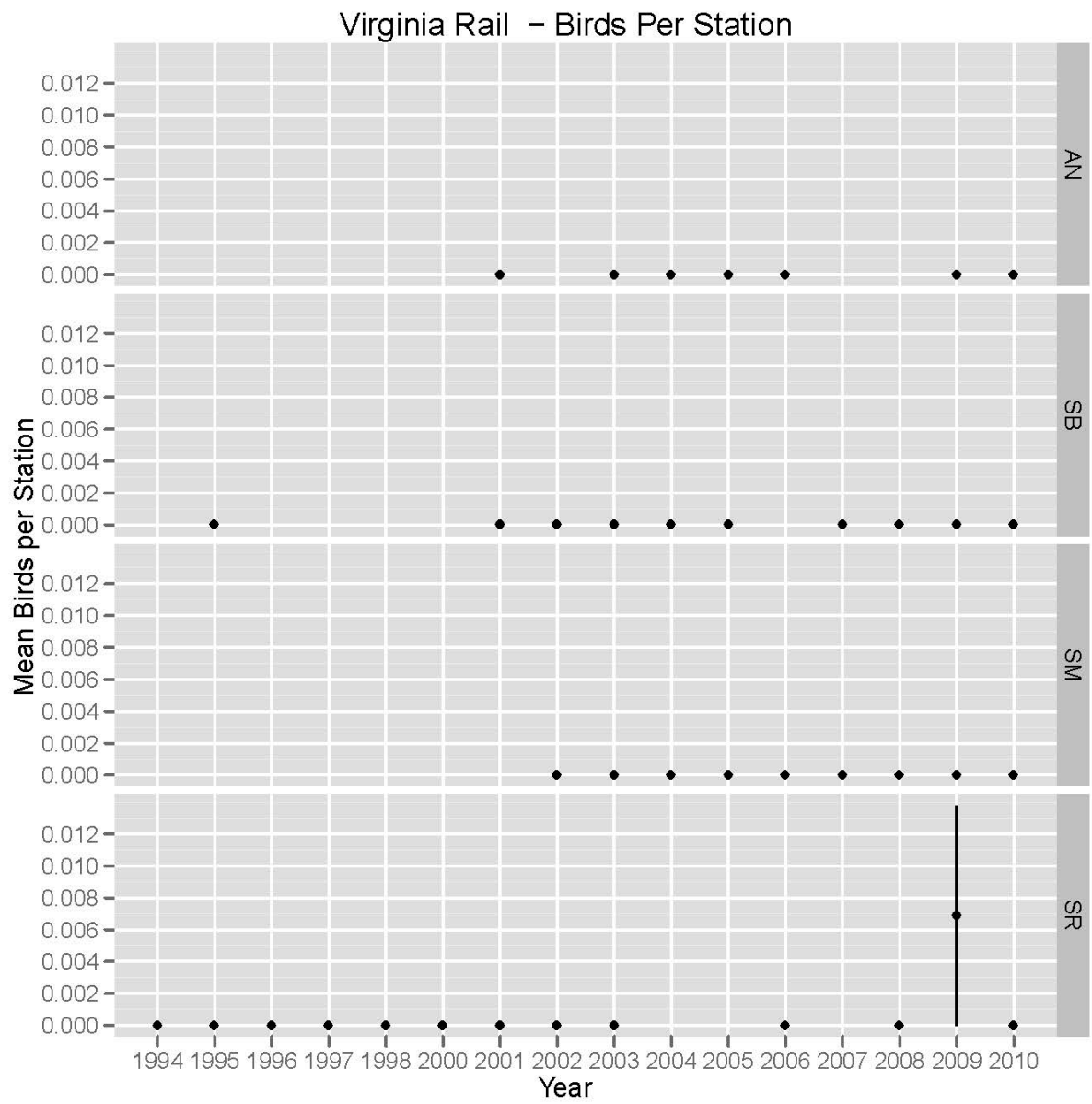


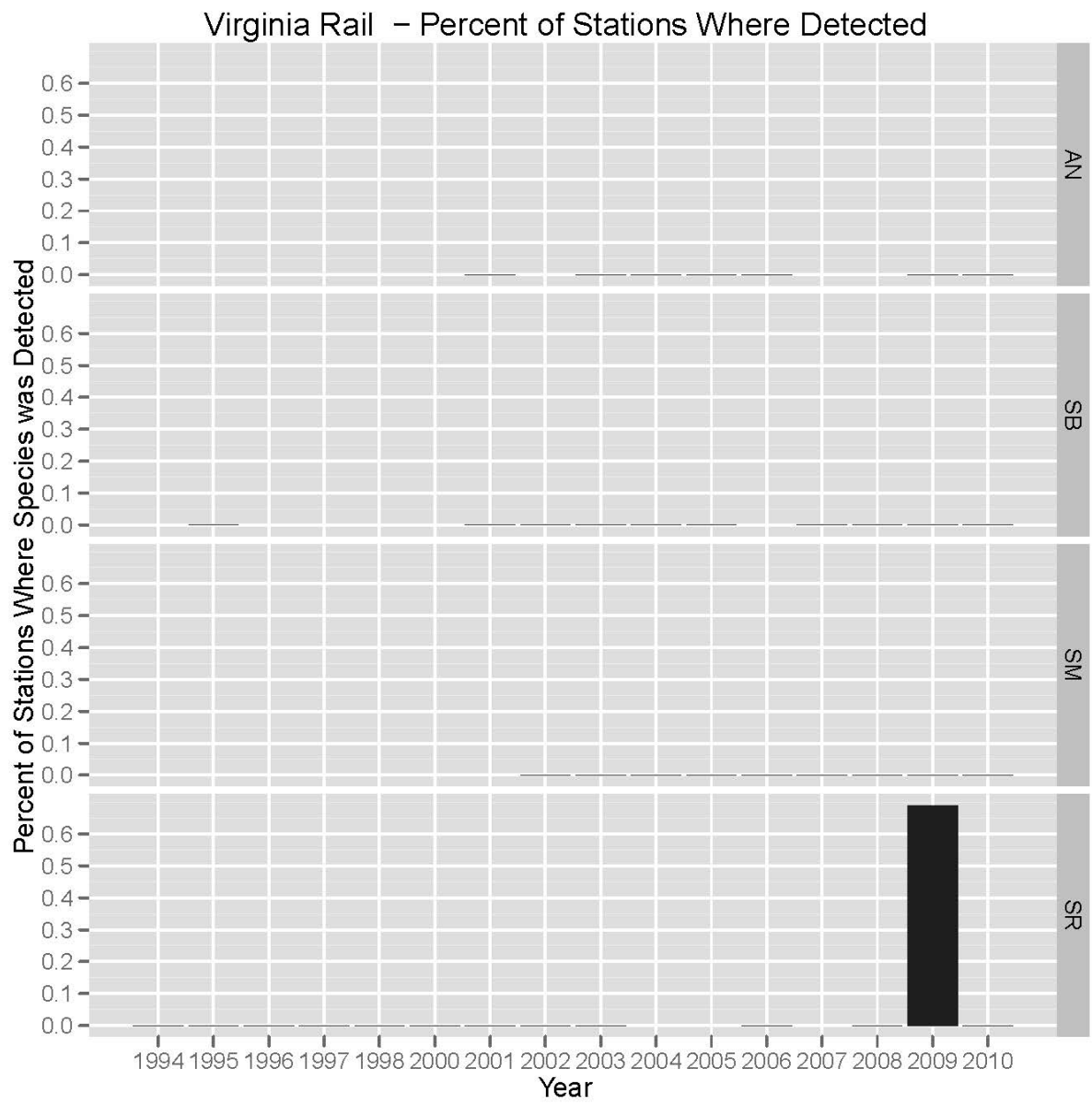


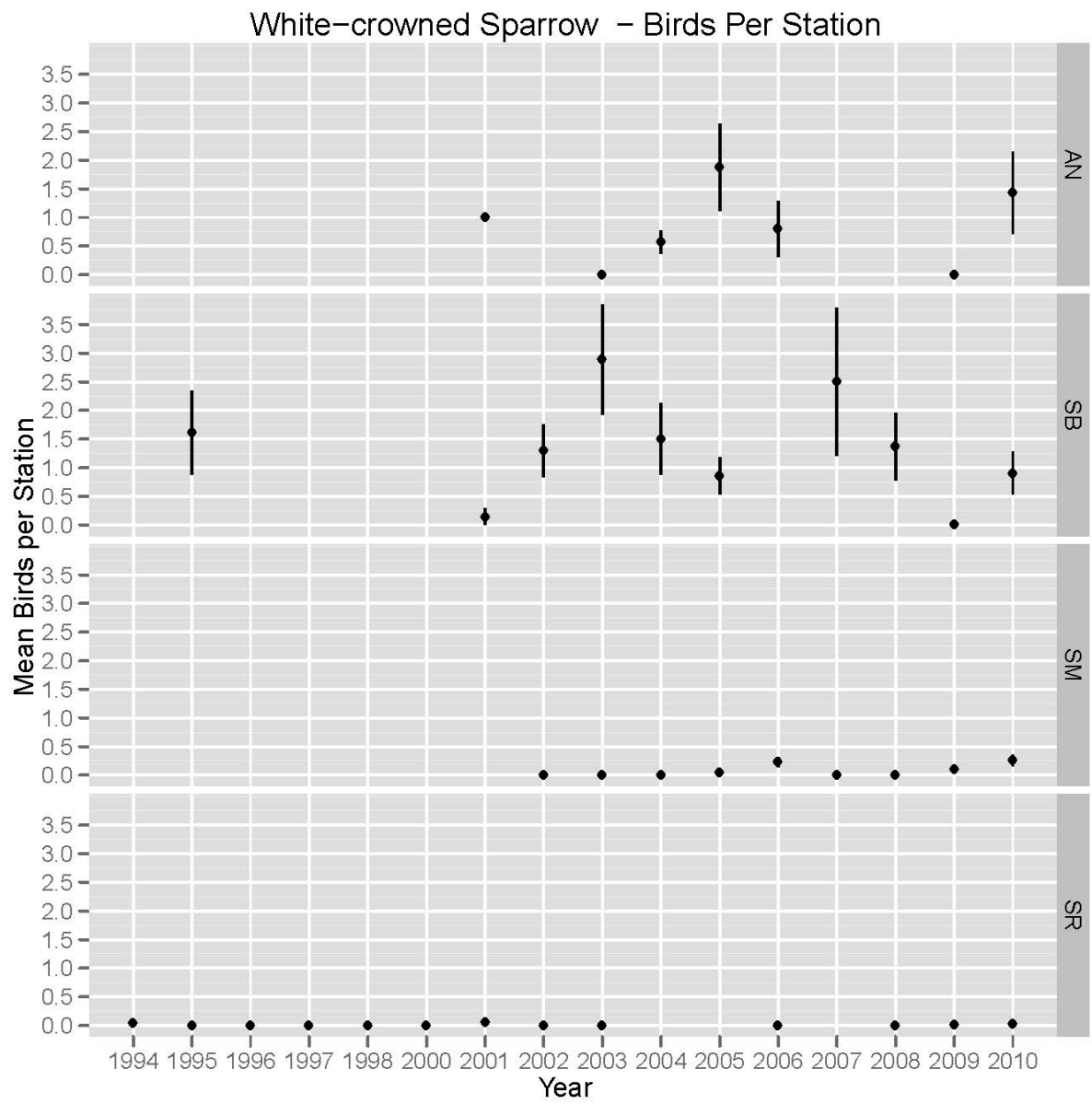


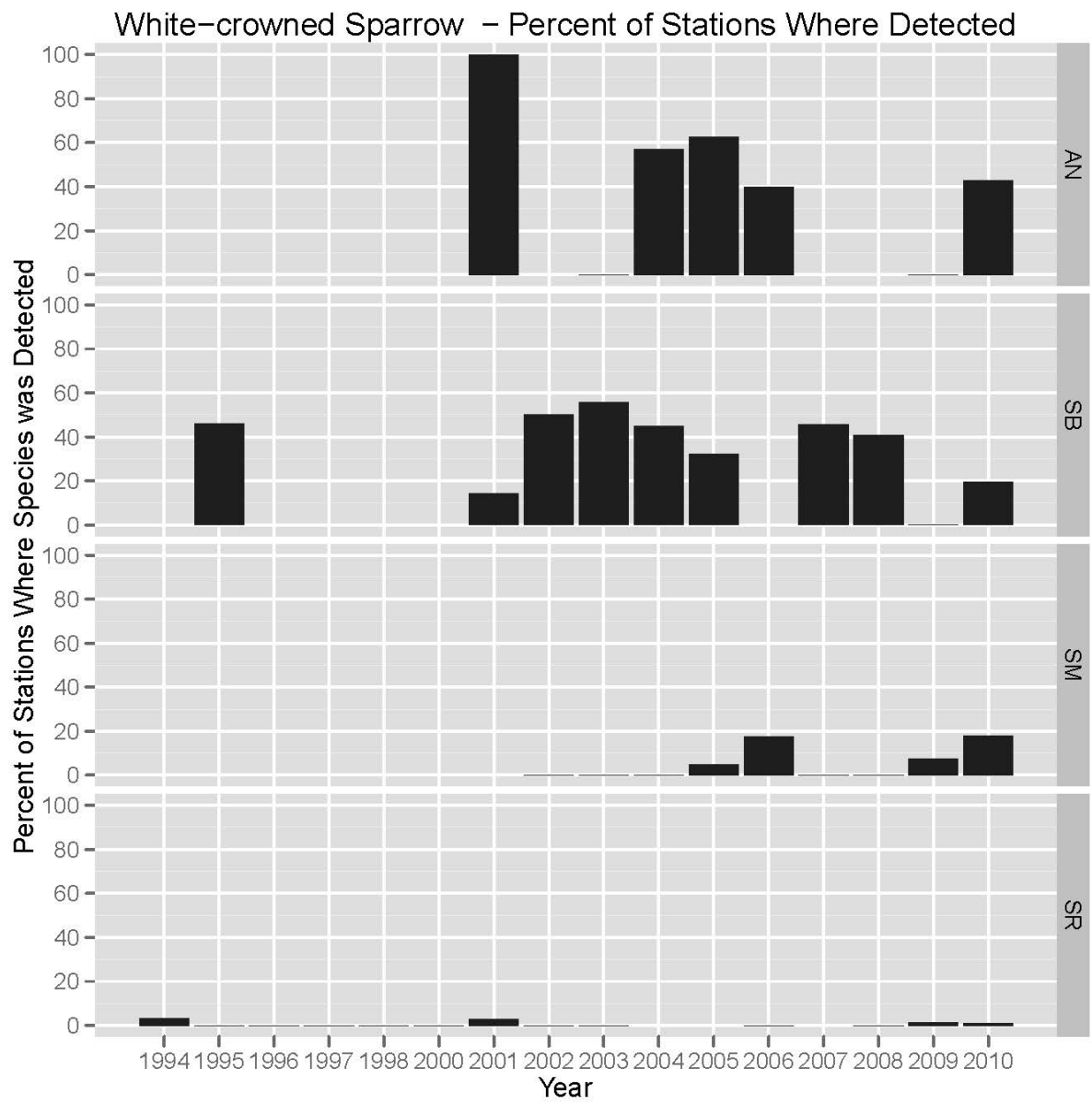


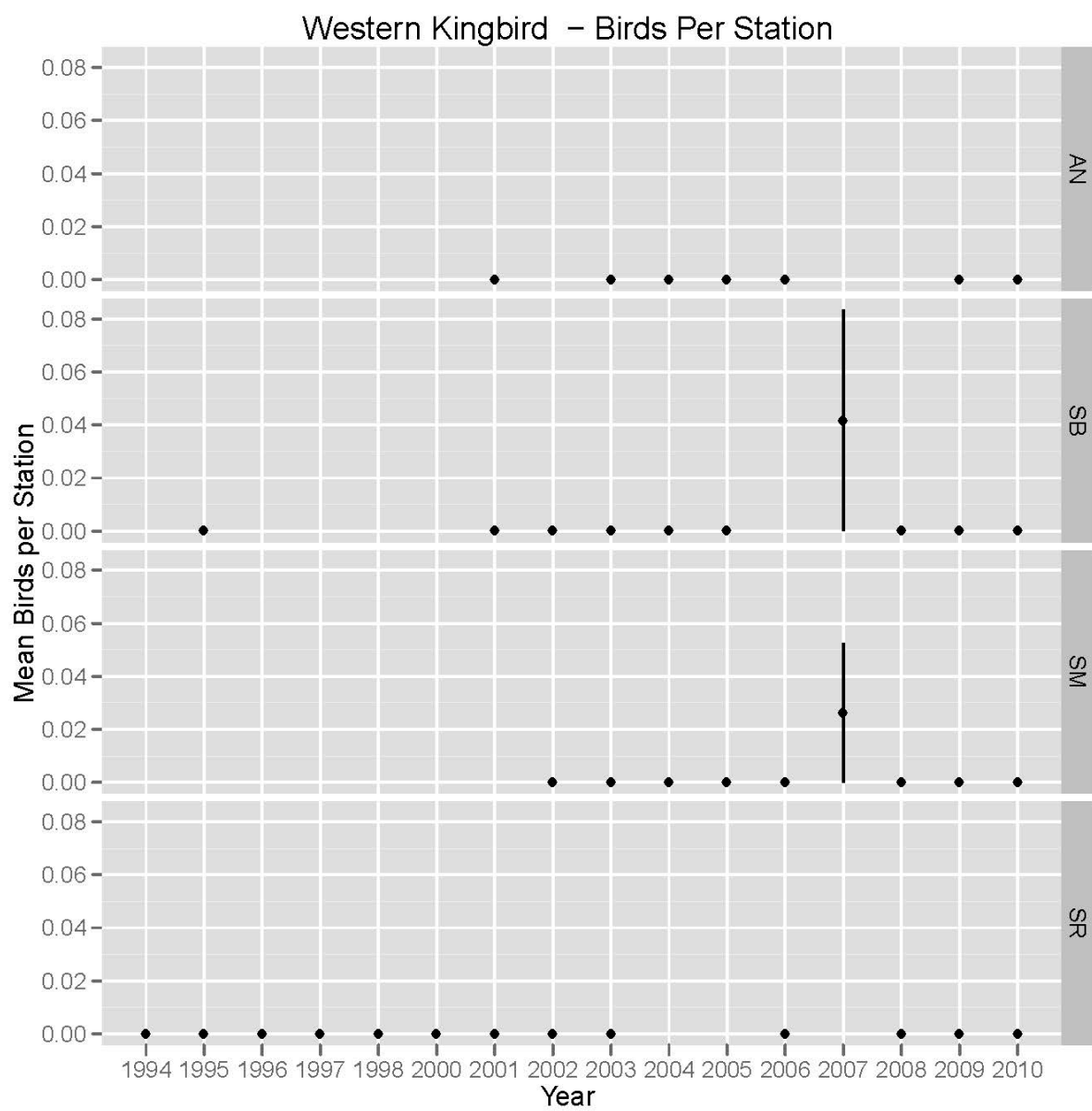


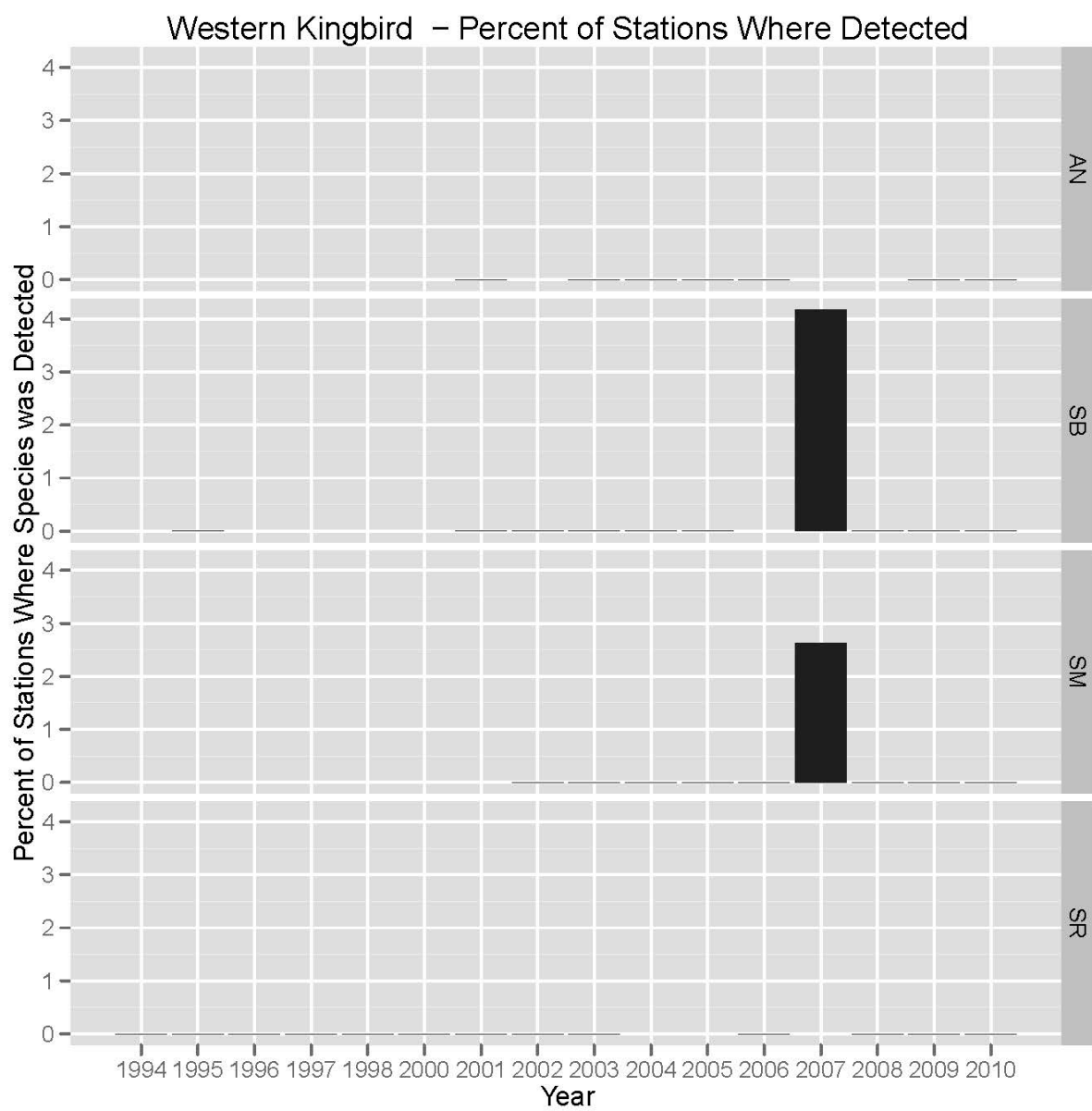


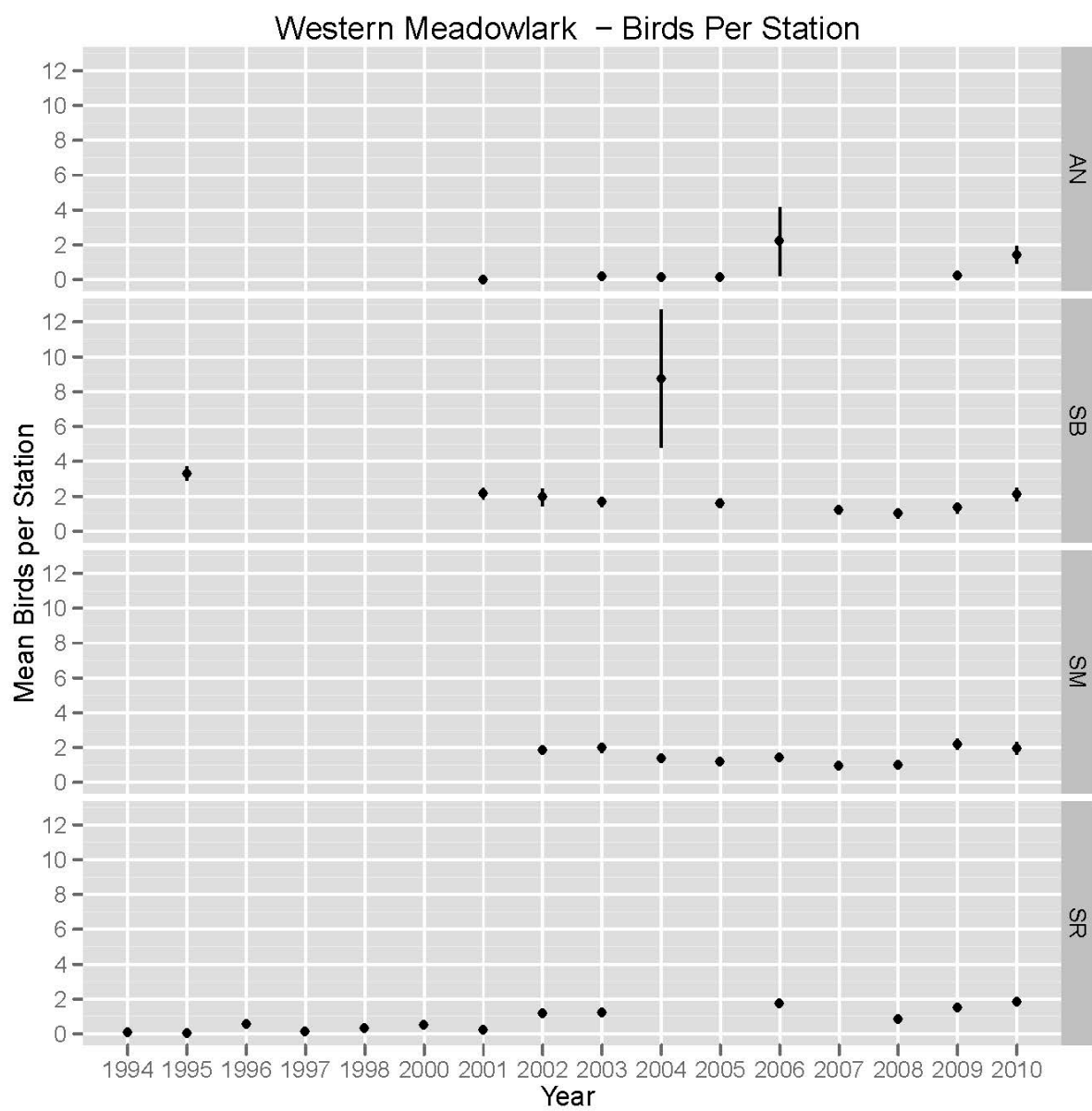


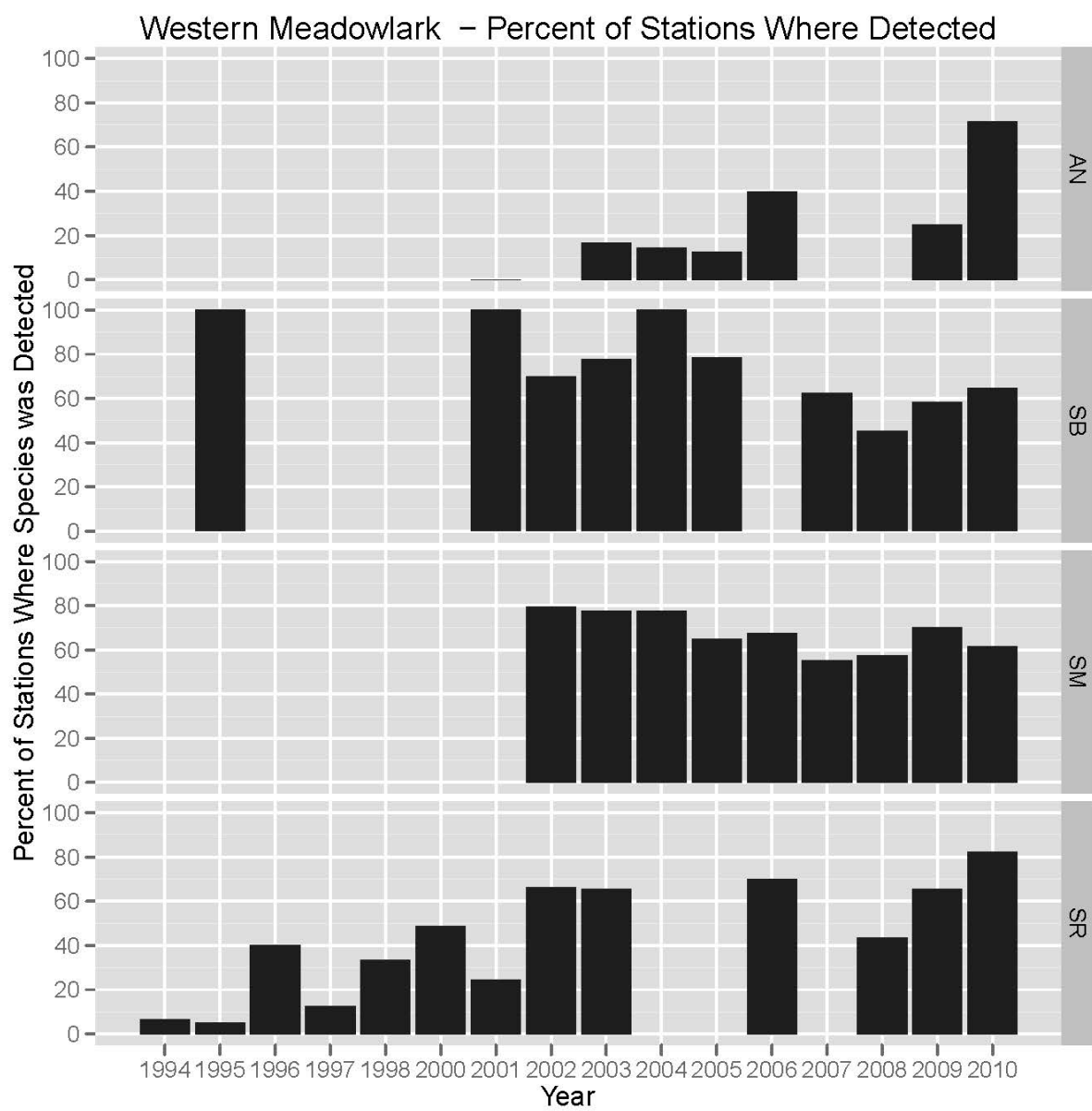


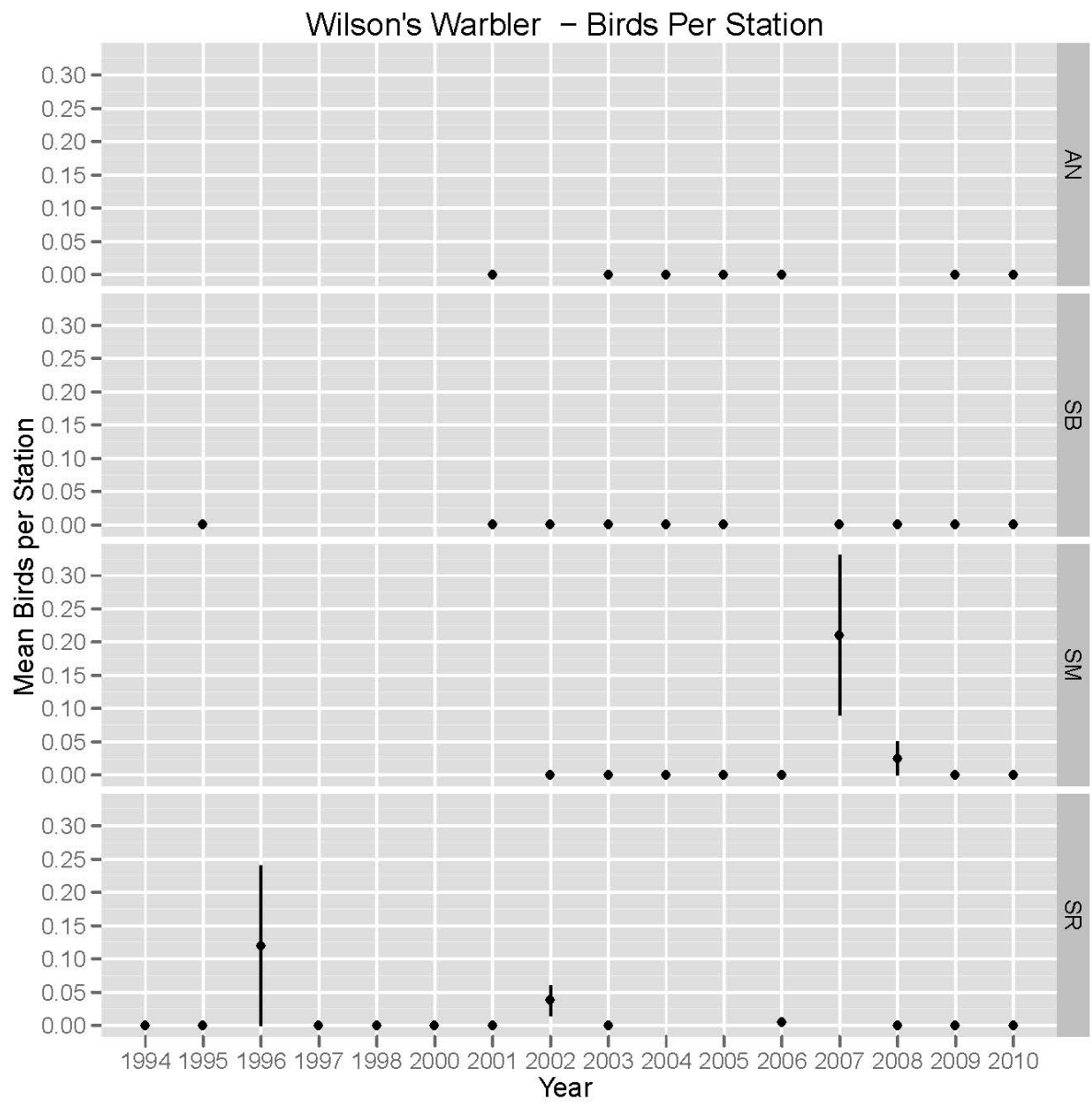


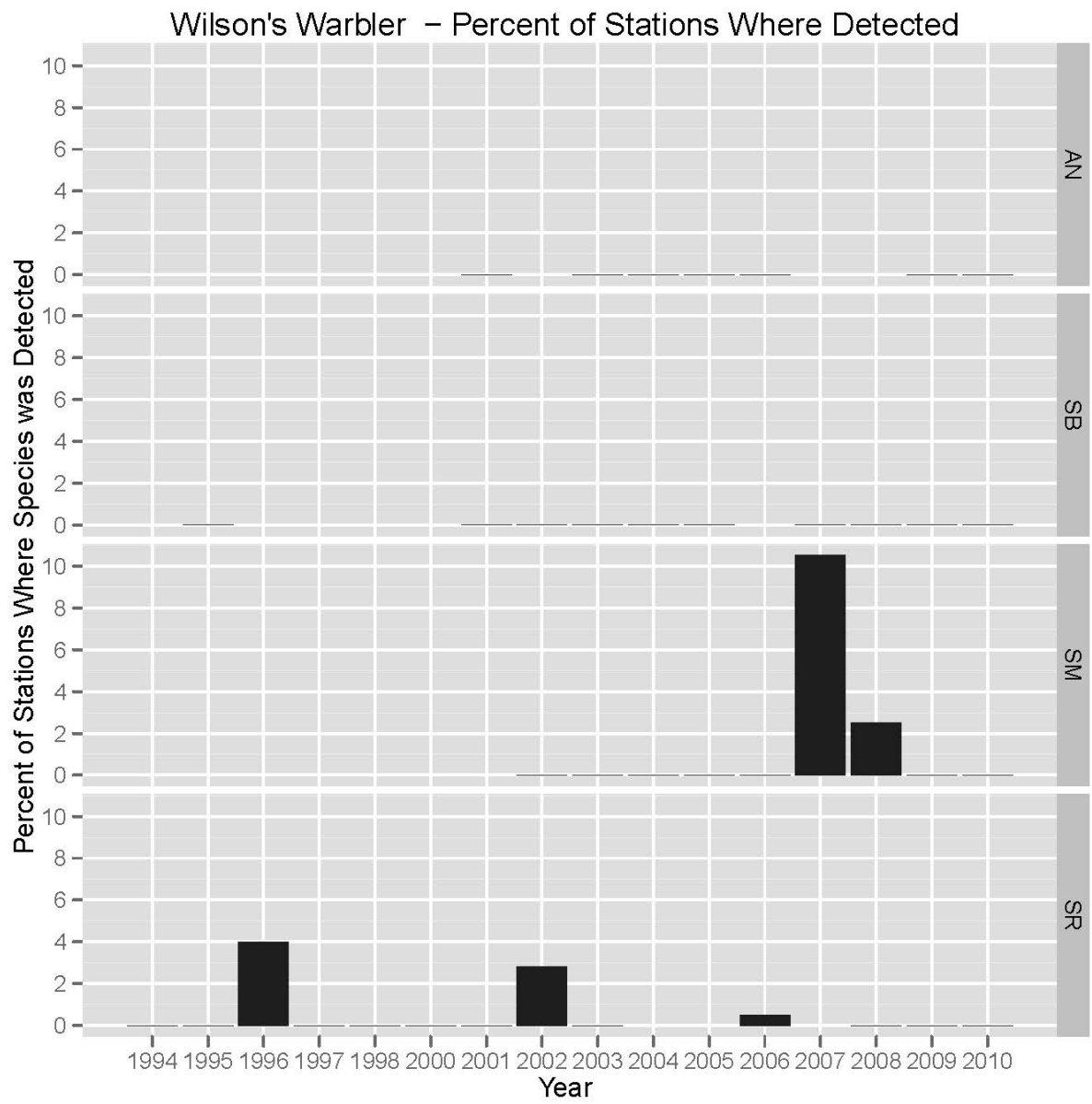


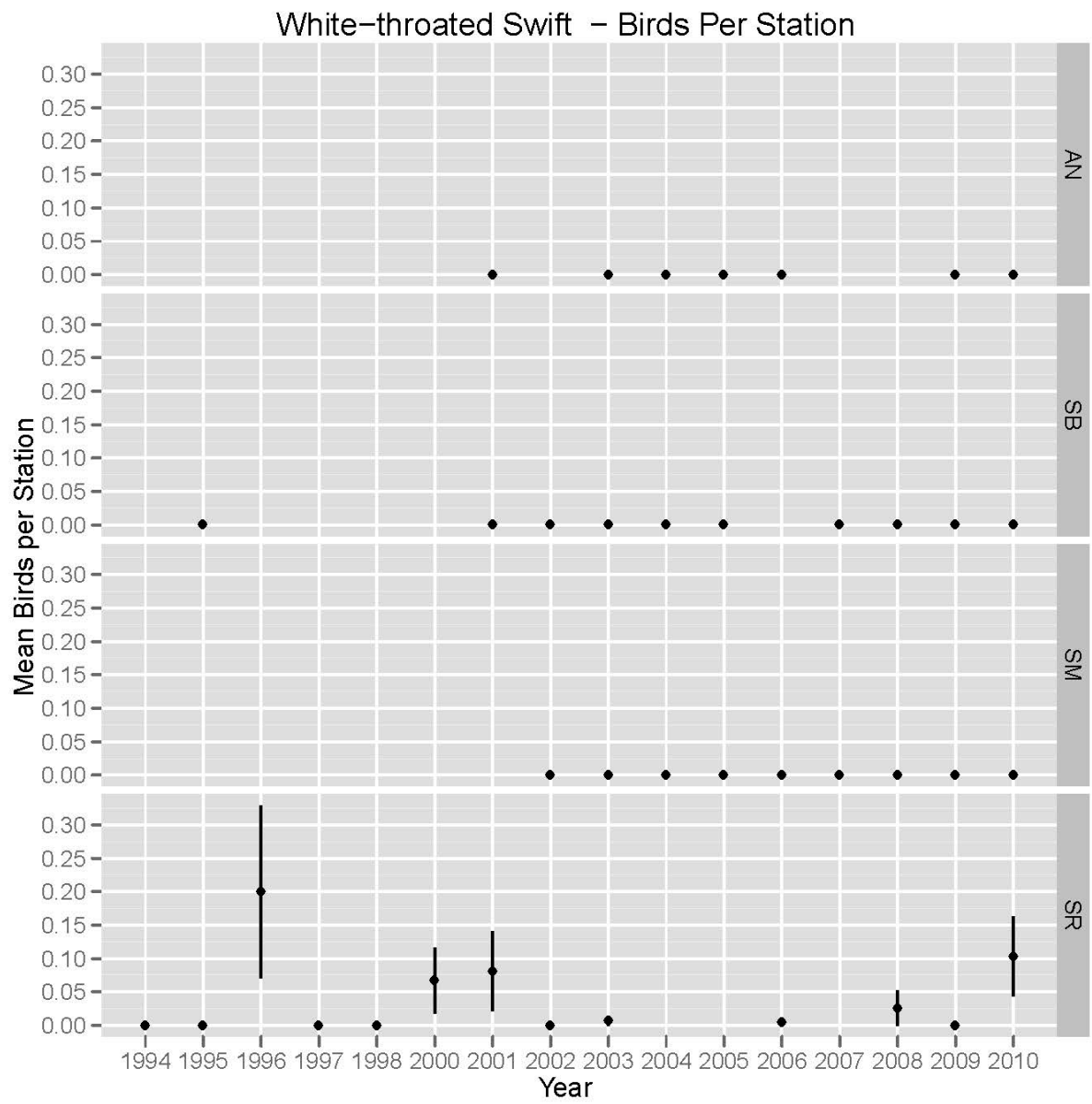


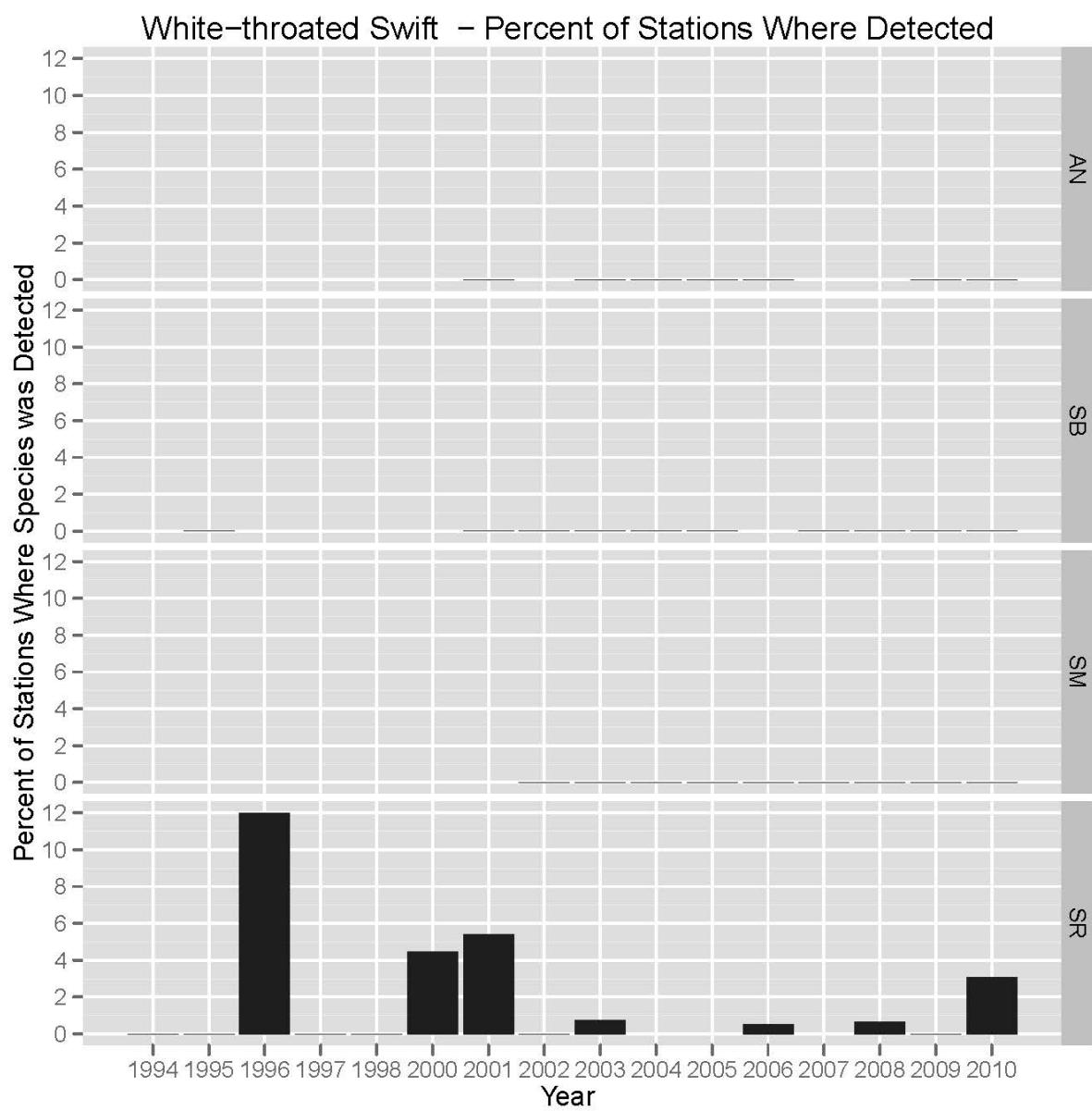


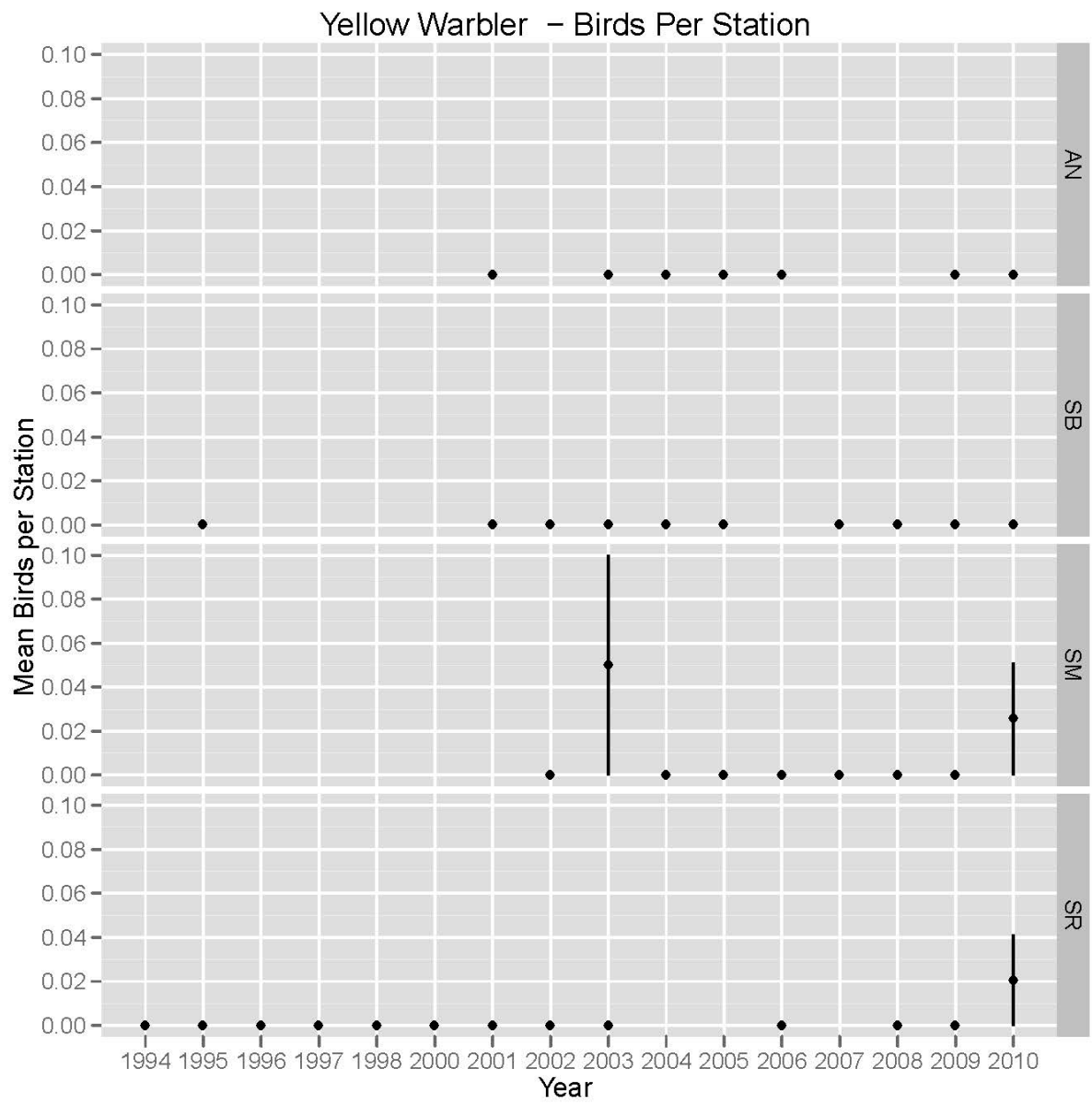


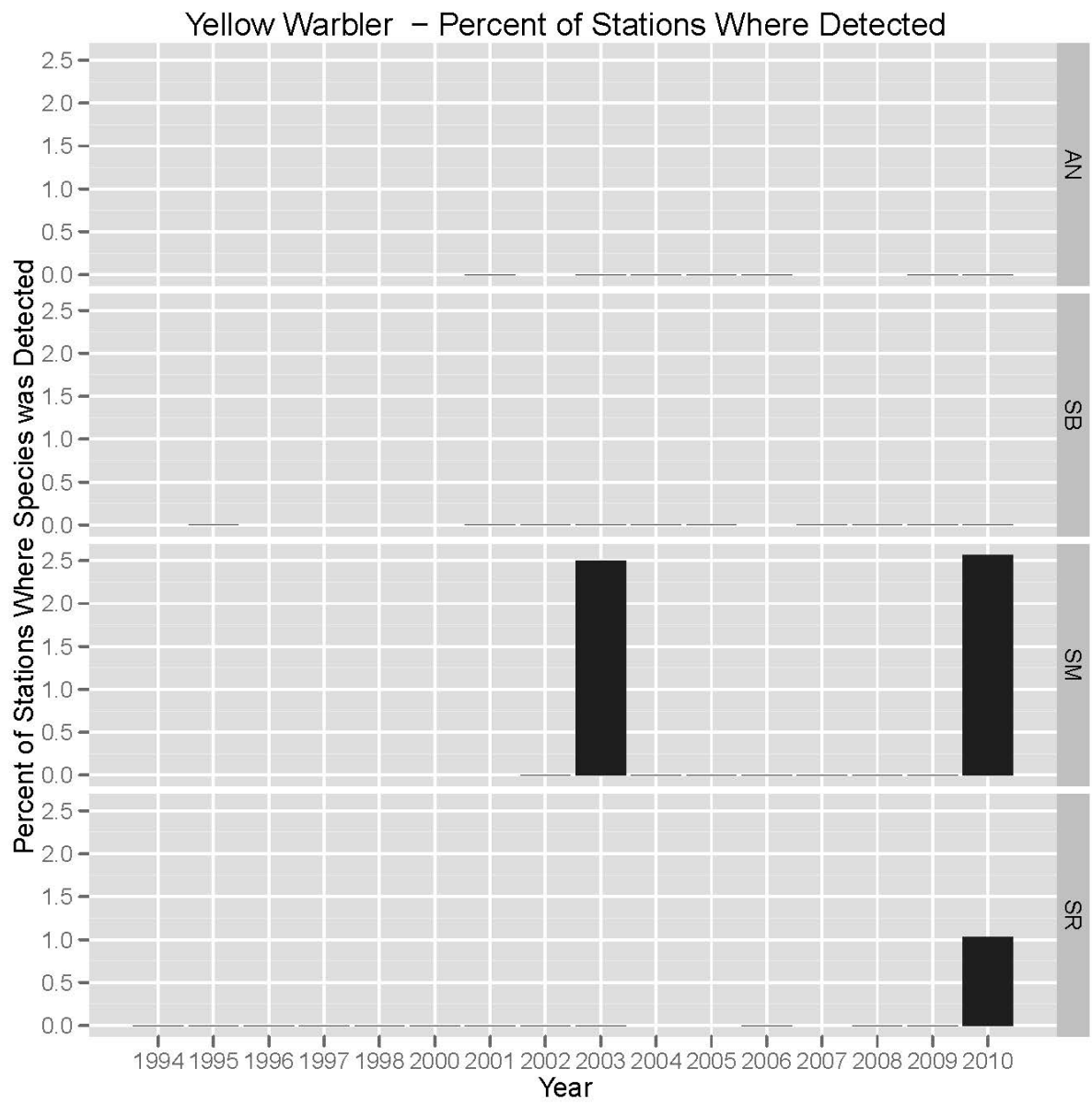


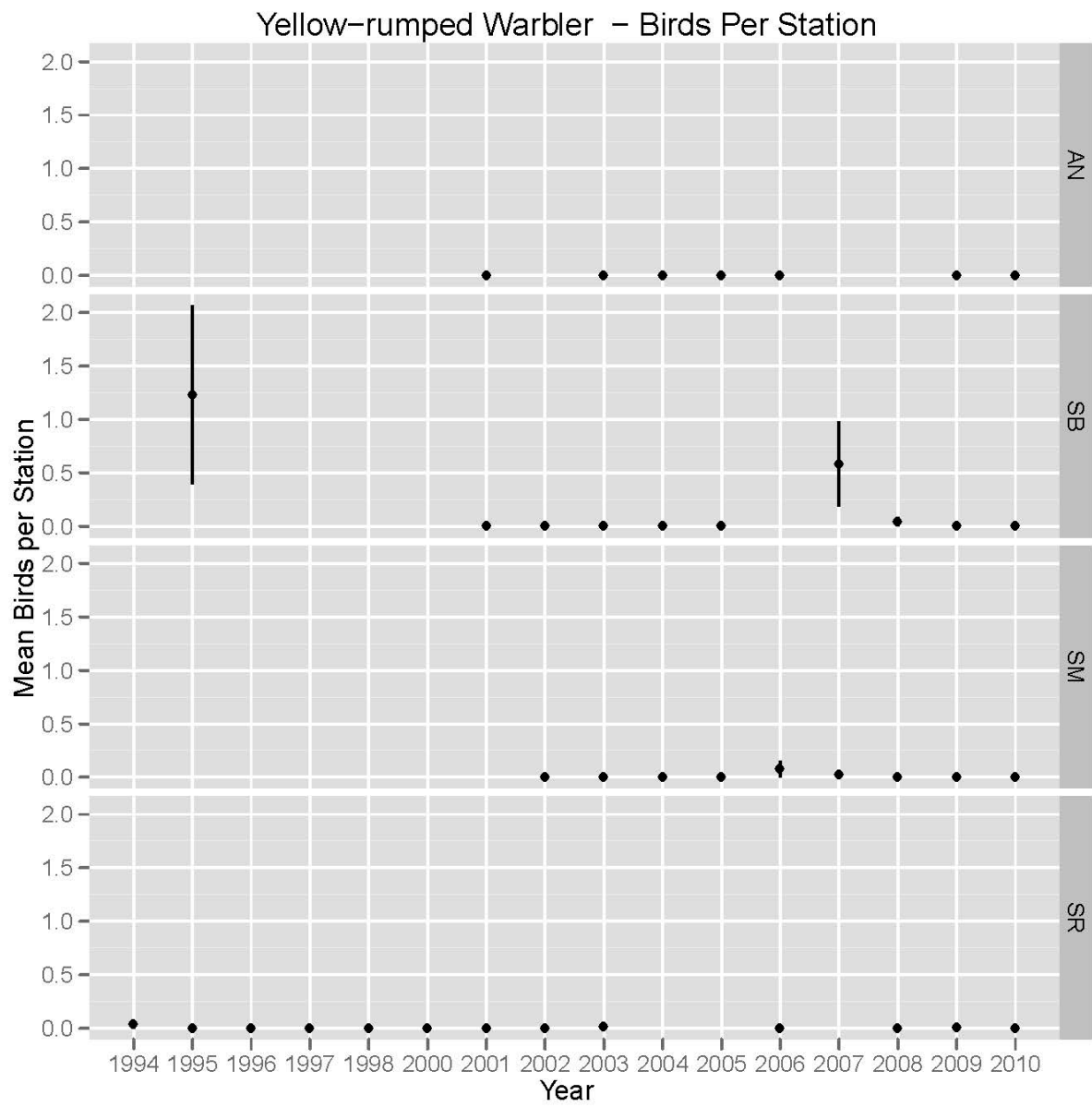


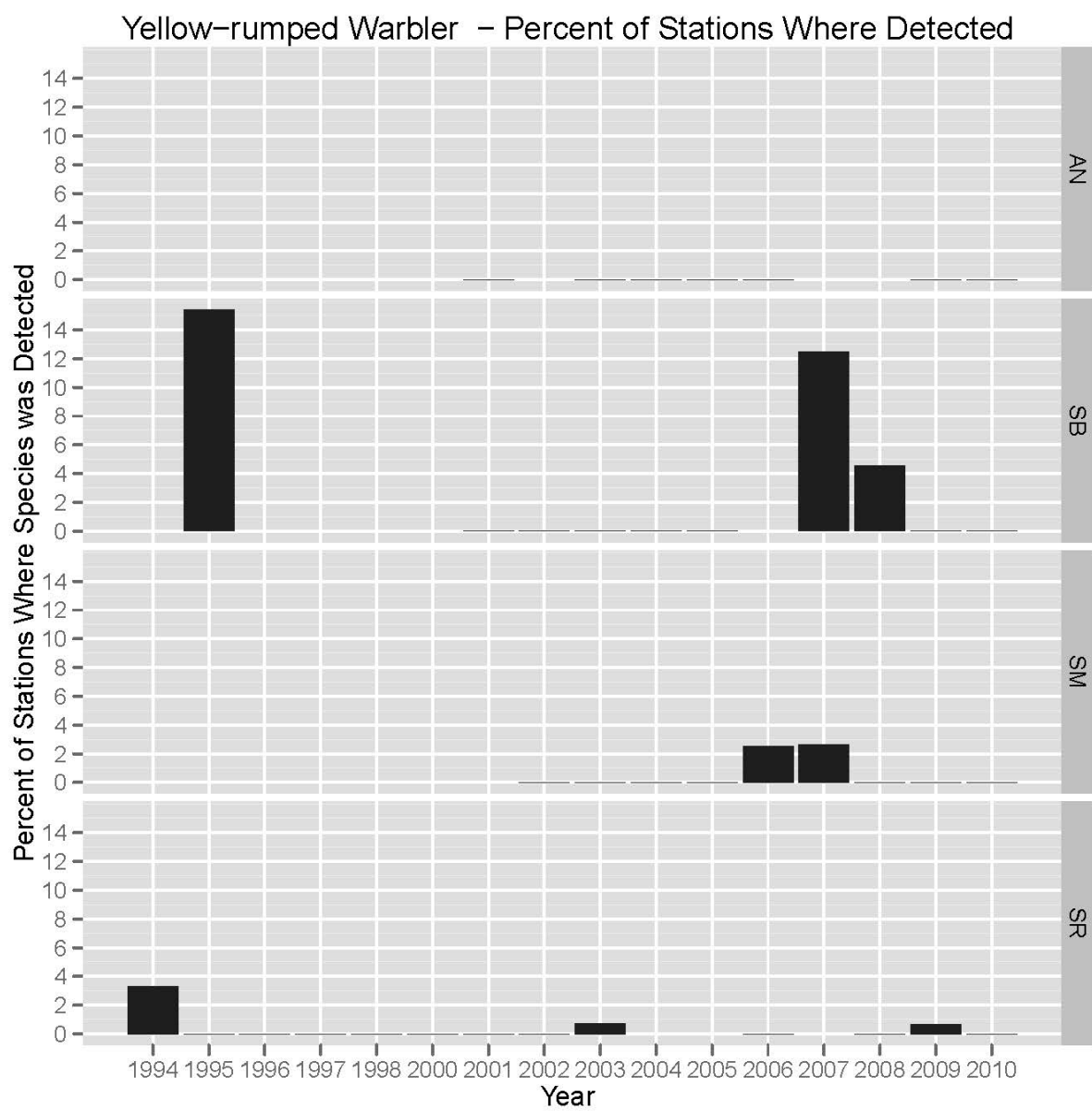












Appendix C: Results of Line Transect Sampling

The following table presents the number of birds recorded on line transects from Santa Barbara, Anacapa, and San Miguel Islands, Channel Islands National Park, 2001-2010.

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<i>Anacapa Island – Trails</i>										
Peregrine Falcon				3						
American Kestrel	2									
Say's Phoebe			3	2					1	
Cliff Swallow				1						
Bewick's Wren	6		13	13	12				3	5
Rock Wren	3		1	1					1	1
Orange-crowned Warbler	27		14	13	36				9	12
Western Meadowlark	1		6	2	8				2	3
House Finch	2		2	4	2					
Savannah Sparrow	1				1					
White-crowned Sparrow	24		8	10	34				3	14
Golden-crowned Sparrow					3					
Song Sparrow	2								7	9
<i>Santa Barbara Island – Arch Point</i>										
Northern Harrier				1	3				1	
Peregrine Falcon				1	1					
American Kestrel		3	2	2	1				1	
Black Phoebe					1					
Say's Phoebe		2	2							
Rock Wren		1								
Orange-crowned Warbler	10	15	7	9	8					
Western Meadowlark	30	18	14	26	22				6	
Savannah Sparrow	1				4					
White-crowned Sparrow	4	9	17	13	6					
Hermit Thrush		2								
Horned Lark	15	13	24	30	30				4	
<i>Santa Barbara Island - Canyons</i>										
Sharp-shinned Hawk									1	
Northern Harrier		1		1	3					
Peregrine Falcon			2	1						
American Kestrel	2	5	5	7	3				1	
Rock Dove	1									
Barn Owl	2	1	2							

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Short-eared Owl		2	1	1						
Allen's Hummingbird		1								
Black Phoebe					1					
Say's Phoebe		2	3	1					1	
Orange-crowned Warbler	35	29	14	24	13				6	
Yellow-rumped Warbler				1	4					
Western Meadowlark	18	16	17	32	28				8	
House Finch			1							
Savannah Sparrow	2				8				1	
White-crowned Sparrow	15	10	32	12	26				3	
Horned Lark			1	2	3				1	
Spotted Towhee					1					

Santa Barbara Island – Elephant Seal Cove

Rock Wren			1							
Western Meadowlark			1							
White-crowned Sparrow			1							
Horned Lark			2							

Santa Barbara Island – Signal Peak

Northern Harrier		1		1						
Peregrine Falcon		1			2					
American Kestrel		2		3						
Barn Owl		1								
Say's Phoebe			2							
Rock Wren	2	1		3	2					
Orange-crowned Warbler	10		4	1	1					
Western Meadowlark	19	14	19	20	31					
Savannah Sparrow					8					
White-crowned Sparrow	5	7	7	3	6					
Horned Lark	9	10	15	36	24					

San Miguel Island – Harris Point

Red-tailed Hawk	1			1						
Northern Harrier	1						1			
American Kestrel			1							
Allen's Hummingbird					1					
Rock Wren	1									
Orange-crowned Warbler	11	17	12	33	18	31	9			
Western Meadowlark	5	10	11	12	4	4				
House Finch		2		1			1			
White-crowned Sparrow						2				
Song Sparrow	49	51	57	45	56	55	19			

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
European Starling	1									
Common Raven	4	3	4	1	1	5	2			
Western Tanager							1			
Horned Lark	3	5	1	2			4			
<i>San Miguel Island - Lakebed</i>										
Northern Harrier			3	1	2	7	3			
Prairie Falcon			1							
Peregrine Falcon					1		1			
Anna's Hummingbird							1			
Pacific-slope Flycatcher							1			
Violet-green Swallow						1				
Barn Swallow				1		1	1			
Orange-crowned Warbler	25	10	16	1	3	10	41			
Wilson's Warbler							3			
Western Meadowlark	32	24	31	1	25	38	34			
Hooded Oriole							5			
Black-headed Grosbeak							1			
Lark Bunting							1			
White-crowned Sparrow					10		2			
Song Sparrow	15	45	19	1	49	44	56			
Common Raven	3	2	4	2	4	6	24			
Horned Lark	11	20	31	1	15	23	34			
<i>San Miguel Island – Nidever Canyon</i>										
Red-tailed Hawk	1									
Northern Harrier			1	1						
Anna's Hummingbird							2			
Allen's Hummingbird	1	1		2	1					
Black Phoebe							1			
Barn Swallow		1								
Rock Wren	1									
Orange-crowned Warbler	35	21	19	24	19	10	10			
Yellow-rumped Warbler							1			
Western Meadowlark	3	2	2	1						
Song Sparrow	25	23	15	10	11	7	16			
Common Raven	2	2	2	2	1	3	8			
<i>San Miguel Island – San Miguel Hill</i>										
Red-tailed Hawk						1				
Northern Harrier			1		1					
American Kestrel		1								
Hummingbirds (generic)				1						

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Allen's Hummingbird		1		1	1	1				
Barn Swallow		1								
Orange-crowned Warbler	19	20	11	1	34	27				
Western Meadowlark	10	7	12	1	6	10				
Song Sparrow	9	22	13	1	31	21				
House Sparrow				1						
Common Raven	4	3	4	1	6	1				
Horned Lark	4	17	6	1	12	4				
<i>San Miguel Island – Willow Canyon</i>										
Red-tailed Hawk	2		1		3	2	4		1	
Northern Harrier		2	1	3	4	2	1			
Peregrine Falcon		1								
American Kestrel			1							
Barn Owl	1				2					
Hummingbirds (unidentified))					3	18			3	
Anna's Hummingbird		2		5	4	5				
Allen's Hummingbird	28	32	8	18	24	15	33		7	
Olive-sided Flycatcher							2			
Barn Swallow	1					3				
Cliff Swallow						1				
Orange-crowned Warbler	43	37	38	53	64	105	62		8	
Yellow-rumped Warbler						3				
Wilson's Warbler						1				
Western Meadowlark	6	6	2	9	2	9			8	
Black-headed Grosbeak							1			
House Finch	3					1	2		1	
Lawrence's Goldfinch							1			
American Goldfinch	1									
White-crowned Sparrow						3			2	
Song Sparrow	60	82	21	43	72	107	55		16	
House Sparrow						4				
Common Raven	1	5	5	5	7	8	8		2	
Ruby-crowned Kinglet						1				
Horned Lark					2					

Appendix D: Relative Abundance by Habitat and Island

The following tables present landbird relative abundance (number of birds per station) by island and habitat type, Santa Barbara, Anacapa, Santa Rosa and San Miguel Islands, Channel Islands National Park, 2001-2010.

Anacapa Island - Coreopsis scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Peregrine Falcon				0.40						0.20
Black Phoebe										0.40
Say's Phoebe			0.20						0.25	
Barn Swallow						0.25				
Bewick's Wren			0.80	2.00	1.20	2.25			0.75	0.20
Orange-crowned Warbler	1.50		1.00	2.00	3.80	3.25			2.25	2.80
Song Sparrow						0.50			0.50	0.80
Savannah Sparrow	0.50									
Golden-crowned Sparrow					0.60					
White-crowned Sparrow	1.00			0.80	2.60	1.00				1.20
Western Meadowlark			0.20	0.20	0.20	0.25			0.25	1.40
House Finch				3.00		1.25				
Number of sites sampled	2		5	5	5	4			4	5

Anacapa Island - Grassland

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bewick's Wren			1.00	2.00	0.50	1.00				
Orange-crowned Warbler					1.50	1.00				1.00
Savannah Sparrow					0.50					
White-crowned Sparrow					1.00					4.00
Western Meadowlark						10.00				3.00
House Finch						4.00				
Number of sites sampled			1	1	2	1				1

Anacapa Island - Perennial iceplant

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bewick's Wren				2.00	2.00					
Song Sparrow										2.00
Number of sites sampled				1	1					1

San Miguel Island - Baccharis scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier						1.00	1.00			
Anna's Hummingbird							2.00			
Horned Lark					2.00		1.00	2.00		1.00
Common Raven			4.00		2.00			1.00		7.00
Orange-crowned Warbler		1.00		4.00	1.00	1.00	4.00	6.00	1.00	3.00
Song Sparrow		5.00	2.00	2.00	4.00	5.00	2.00	4.00	4.00	7.00
Brown-headed Cowbird							1.00			
Western Meadowlark		2.00	3.00	2.00	2.00	3.00	3.00	2.00	5.00	3.00
House Finch			2.00							
Number of sites sampled		1	1	1	1	1	1	1	1	1

San Miguel Island - Caliche scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk							0.50			
Northern Harrier				0.50						
Horned Lark		4.00	6.00	13.00	5.50	2.00	4.00	10.50	6.00	4.50
Common Raven		1.00	4.00	2.00	3.50	2.00	6.00	6.00	3.50	3.00
Rock Wren		2.50	0.50							
Northern Mockingbird								0.50		
Song Sparrow		1.50		1.50		2.00	1.50	0.50	3.00	3.00
White-crowned Sparrow						0.50				
Western Meadowlark		1.50	1.50	1.00	1.50	1.00	1.00	0.50	0.50	1.00
Number of sites sampled		2	2	2	2	2	2	2	2	2

San Miguel Island - Coastal bluff scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Horned Lark		3.00			1.00	2.00		3.00	1.00	4.00
Common Raven		1.00		1.00	1.00			2.00		6.00
Orange-crowned Warbler		1.00	1.00	1.00	2.00	3.00	2.00	5.00		
Song Sparrow		3.00	4.00	7.00	5.00	5.00	4.00	2.00	5.00	4.00
White-crowned Sparrow										2.00
Western Meadowlark		1.00	1.00	1.00	2.00	4.00			2.00	
Number of sites sampled		1	1	1	1	1	1	1	1	1

San Miguel Island - Coastal sage scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
American Kestrel		0.50								
Anna's Hummingbird			0.50							
Allen's Hummingbird		0.50								
Horned Lark			0.50	1.00		0.50	1.00	6.00		0.50
Common Raven		0.50	1.00	0.50	1.00	3.50	3.50	0.50	3.00	2.50
Orange-crowned Warbler		1.50	2.50	0.50	3.00	2.00	3.00	5.00	1.00	3.00
Song Sparrow		3.00	1.50	4.00	8.00	3.50	3.50	7.50	4.50	6.00
White-crowned Sparrow					0.50	1.00			1.00	
Western Meadowlark		1.00	1.50	2.00	0.50	1.50	1.50	0.50	1.50	1.50
House Finch			1.00						1.50	
Number of sites sampled		2	2	2	2	2	2	2	2	2

San Miguel Island – Coastal scrub (non-spec)

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk		0.20	0.20							
Northern Harrier			0.40			0.20		0.40		
Peregrine Falcon										0.20
American Kestrel		0.20								
Anna's Hummingbird			0.20							
Allen's Hummingbird		0.20						0.20		
Horned Lark		0.80	0.20	0.40	1.50	0.80		1.40	1.00	3.00
Common Raven		1.60	1.60	7.40	3.17	1.40	1.20	1.80	2.00	2.00
Townsend's Warbler								1.00		
Orange-crowned Warbler		1.40	1.00	2.40	1.67	1.60	2.00	3.00	1.60	2.00
Black-headed Grosbeak							1.00			
Song Sparrow		3.20	3.00	4.80	4.00	5.20	4.00	3.40	4.00	4.20
White-crowned Sparrow					0.17					0.20
Western Meadowlark		1.40	2.60	1.80	1.00	1.40	0.60	1.00	2.40	1.20
House Finch			0.60						0.20	1.00
Number of sites sampled		5	5	5	6	5	5	5	5	5

San Miguel Island - Coreopsis scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk		0.13	0.25	0.38				0.13		
Northern Harrier				0.13			0.14			0.13
Peregrine Falcon		0.13								
Mourning Dove				0.13						
Anna's Hummingbird			0.25							
Allen's Hummingbird		0.50		0.63	0.50	0.38	0.43	0.50	0.13	0.13
Pacific-slope Flycatcher							0.14			
Black Phoebe									0.13	
Horned Lark		0.13		0.50	0.75	0.13	0.43	1.13	1.00	1.00
Cliff Swallow					0.13					
Barn Swallow								0.38	0.13	
Common Raven		1.13	1.25	1.00	1.63	2.13	2.14	2.88	2.00	1.50
Rock Wren		0.25	0.13					0.13		0.25
Yellow-rumped Warbler						0.38				
Yellow Warbler			0.25							
Townsend's Warbler							0.57	0.13		
Orange-crowned Warbler		3.00	2.88	2.88	5.25	4.25	4.00	6.00	2.88	5.88
Wilson's Warbler							0.86	0.13		
Rufous-crowned Sparrow								0.13		
Lark Bunting							0.14			
Song Sparrow		5.50	2.50	5.13	4.63	5.88	5.43	4.63	5.63	4.88
Savannah Sparrow							0.14			
Chipping Sparrow								0.13		
White-crowned Sparrow						0.13			0.25	0.13
Western Meadowlark		0.75	0.88	0.75	0.38	0.75	0.29	0.50	1.13	1.25
Lesser Goldfinch							0.14			
House Finch		0.13				0.13	0.29		1.13	0.38
Number of sites sampled		8	8	8	8	8	7	8	8	8

San Miguel Island - Grassland

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk		0.36	0.18	0.09		0.09	0.20			
Northern Harrier		0.18	0.18	0.91	0.36	0.36				0.10
Peregrine Falcon					0.09					
Mountain Plover								0.09		
Anna's Hummingbird						0.09		0.09		0.10
Allen's Hummingbird		0.18	0.09		0.09	0.09			0.09	0.10
Black Phoebe			0.09							
Say's Phoebe									0.09	
Western Kingbird							0.10			
Horned Lark		0.55	1.18	0.55	1.27	0.45	0.60	0.91	1.36	1.40
Barn Swallow				0.09			0.30	0.18		
Common Raven		1.55	0.27	0.73	0.73	2.09	2.10	3.00	1.45	1.40
Rock Wren										0.10
House Wren						0.09				
Ruby-crowned Kinglet							0.10			
Yellow-rumped Warbler							0.10			
Orange-crowned Warbler		1.09	0.91	1.45	0.64	1.55	1.80	3.18	1.82	0.70
Wilson's Warbler							0.10			
Song Sparrow		3.00	2.18	3.55	2.27	2.00	2.00	3.18	4.82	3.10
Chipping Sparrow									0.09	
White-crowned Sparrow						0.18				0.40
Brewer's Blackbird						0.09				
Western Meadowlark		3.18	2.73	1.91	1.82	1.82	1.30	1.55	3.09	3.60
American Goldfinch									0.18	
House Finch		0.45	0.18			0.18		0.82	1.09	0.20
Number of sites sampled		11	11	11	11	11	10	11	11	10

San Miguel Island - Lupine scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk				0.13						
Northern Harrier		0.13	0.50	0.25	0.63	0.13	0.25			
Peregrine Falcon						0.13	0.13			
Anna's Hummingbird			0.13							
Allen's Hummingbird		0.38							0.13	0.13
Pacific-slope Flycatcher								0.13		
Say's Phoebe										0.13
Horned Lark		0.25	0.13	0.50		0.25	0.25	1.50	1.25	1.13
Barn Swallow			0.25					0.13		
Violet-green Swallow							0.13			
Common Raven		1.25	2.75	1.75	1.13	1.88	2.00	3.25	1.13	2.50
Rock Wren				0.13						0.38
Hermit Thrush						0.13				
Yellow Warbler										0.13
Orange-crowned Warbler		2.50	2.75	3.63	2.25	3.13	3.63	2.75	2.75	2.25
Wilson's Warbler							0.13			
Song Sparrow		5.13	4.88	7.13	6.38	7.25	3.63	8.25	6.00	6.00
Spotted Towhee				0.13						
White-crowned Sparrow						0.38				0.13
Western Meadowlark		1.88	2.38	1.13	1.38	1.50	1.38	1.25	2.75	2.00
House Finch		0.13				0.13	0.13		0.38	0.38
Number of sites sampled		8	8	8	8	8	8	8	8	8

San Miguel Island - Riparian herbaceous

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier			1.00							
Anna's Hummingbird								1.00		
Allen's Hummingbird				1.00						
Horned Lark		1.00								
Common Raven				2.00	1.00	6.00	6.00		2.00	1.00
Orange-crowned Warbler			2.00	4.00	6.00	3.00	4.00	4.00	4.00	5.00
Rufous-crowned Sparrow								1.00		
Song Sparrow		4.00	3.00	3.00	1.00	2.00	2.00	15.00	6.00	2.00
Western Meadowlark		2.00								
House Finch							1.00	3.00	2.00	2.00
House Sparrow									1.00	
Number of sites sampled		1	1	1	1	1	1	1	1	1

San Miguel Island - Riparian woodland

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier						1.00				
Allen's Hummingbird			2.00	2.00	2.00	2.00	4.00		6.00	5.00
Pacific-slope Flycatcher								1.00		
Horned Lark					2.00					
Common Raven				1.00		2.00			1.00	1.00
Orange-crowned Warbler			3.00	5.00	5.00	3.00	7.00	5.00	4.00	6.00
Song Sparrow			1.00	2.00	1.00	4.00	3.00	2.00	2.00	2.00
White-crowned Sparrow										1.00
Western Meadowlark				1.00						
House Sparrow						1.00				
Number of sites sampled			1	1	1	1	1	1	1	1

Santa Barbara Island - Boxthorn scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier										1.00
Horned Lark	1.00		1.00	3.00	2.00			14.00	6.00	4.00
Savannah Sparrow							1.00	1.00		
Western Meadowlark	1.00	8.00	2.00	4.00	1.00		3.00	1.00	4.00	7.00
Number of sites sampled	1	1	1	1	1		1	1	1	1

Santa Barbara Island - Cactus scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier										0.50
Peregrine Falcon										0.50
American Kestrel		0.50	0.50	1.00	2.00					0.50
Say's Phoebe			0.50							0.50
Horned Lark								2.00		2.00
Northern Mockingbird							1.00			
Yellow-rumped Warbler							3.00			
Orange-crowned Warbler	1.00	2.50	0.50	1.00	1.00			3.00		4.50
Savannah Sparrow								3.00		
White-crowned Sparrow	1.00	0.50	9.00	4.00			5.00			
Western Meadowlark	3.00	1.00	2.00	22.00	4.00		2.00	4.00	5.00	2.50
House Finch			0.50							
Number of sites sampled	1	2	2	1	1		1	1	1	2

Santa Barbara Island - Coreopsis scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier				0.33	0.40					0.20
Peregrine Falcon				0.33			0.33			
American Kestrel		0.20	0.20	1.00	0.60		0.67			0.20
Short-eared Owl							2.00			
Say's Phoebe	1.00		0.20	0.33					0.33	0.40
Horned Lark	1.00	0.80	0.20	1.00	0.60		0.33	0.50	1.00	3.20
Rock Wren										0.20
Ruby-crowned Kinglet					1.40					
Yellow-rumped Warbler							3.67	0.50		
Orange-crowned Warbler	3.00	2.00	1.00	2.33	1.00		0.33	6.50		3.60
Savannah Sparrow					0.20			1.50		
White-crowned Sparrow		2.60	4.60	4.00	3.20		1.33	5.50		1.80
Western Meadowlark	1.00	1.20	1.40	3.33	2.60		1.67	2.00	1.67	3.40
Number of sites sampled	1	5	5	3	5		3	2	3	5

Santa Barbara Island - Grassland

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier		0.20		0.08	0.13		0.08		0.13	0.06
Peregrine Falcon				0.08			0.08			0.06
American Kestrel		0.10	0.13	0.46	0.06		0.08			
Say's Phoebe		0.20	0.13							
Western Kingbird							0.08			
Horned Lark	2.75	1.10	0.94	2.00	1.81		2.33	7.42	4.60	6.24
Barn Swallow					0.06					
Orange-crowned Warbler	0.50		0.25	0.23	0.19		0.42	0.17		0.65
Grasshopper Sparrow										0.24
Savannah Sparrow					0.44		0.50	0.50	0.27	
White-crowned Sparrow		1.20	2.31	1.08	0.44		0.67	1.33		0.65
Western Meadowlark	2.50	2.00	1.81	10.38	1.38		1.42	1.08	1.20	2.12
Number of sites sampled	4	10	16	13	16		12	12	15	17

Santa Barbara Island - Perennial iceplant

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Peregrine Falcon		1.00								0.67
Horned Lark		2.00	2.00	3.00	3.00		5.00	8.00	6.00	5.00
Rock Wren		1.00								
Savannah Sparrow					0.50		1.50	0.50		
White-crowned Sparrow							4.50			
Western Meadowlark		3.00	1.00	3.00	0.50		0.50			
Number of sites sampled		1	1	1	2		2	2	2	3

Santa Barbara Island - Sea cliff scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Peregrine Falcon					1.00			1.00		
Horned Lark		1.00	1.00	9.00	13.00		5.00	11.00	3.00	8.00
Rock Wren				2.00				2.00		1.00
Orange-crowned Warbler				1.00						
Grasshopper Sparrow										1.00
Savannah Sparrow								30.00		
White-crowned Sparrow								1.00		8.00
Western Meadowlark			1.00	1.00						
Number of sites sampled		1	1	1	1		1	1	1	1

Santa Barbara Island - Seablite scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Horned Lark					1.00		0.50	3.33	10.00	3.25
Common Yellowthroat							0.25			
Orange-crowned Warbler					0.50					
White-crowned Sparrow					0.25		8.50	0.67		
Western Meadowlark			1.00		1.00		0.25			0.25
Number of sites sampled			1		4		4	3	1	4

Santa Rosa Island - Closed Cone Pine

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk									0.17	
Anna's Hummingbird						0.17				
Allen's Hummingbird			0.67			0.33		0.20	1.17	1.00
Acorn Woodpecker									0.17	
Pacific-slope Flycatcher			0.17			1.17		1.40	1.33	
Horned Lark						0.67		0.20	0.17	
Barn Swallow			0.33							
Common Raven						0.17		0.40	1.00	2.00
Red-breasted Nuthatch						0.17				
Rock Wren						0.33				
Bewick's Wren			1.67			0.67		1.00	2.33	1.00
Orange-crowned Warbler			2.00			1.83		0.40	1.83	1.00
Song Sparrow			0.17			1.50			0.50	
Spotted Towhee			1.00			2.17		1.80	2.67	3.00
Chipping Sparrow			0.67			0.50		0.60	1.17	1.00
Western Meadowlark			0.67			0.83			0.33	3.00
Lesser Goldfinch			0.67			1.67		1.00	1.17	
House Finch			1.00			1.17		1.60	2.67	2.00
Number of sites sampled			6			6		5	6	1

Santa Rosa Island - Coastal sage scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mallard		0.15				0.16			0.03	
Red-tailed Hawk		0.08				0.14		0.06	0.03	0.09
Bald Eagle						0.03				0.05
Peregrine Falcon						0.03				0.05
California Quail			0.10			0.16		0.03	0.03	0.09
Mourning Dove								0.03	0.03	
Anna's Hummingbird			0.20			0.05				
Rufous Hummingbird						0.05				
Allen's Hummingbird		0.15	0.30			0.03		0.19	0.22	0.27
Pacific-slope Flycatcher		0.46	0.20			0.30		0.13	0.43	0.23
Black Phoebe			0.10			0.08		0.10	0.03	
Horned Lark		0.15				0.03			0.08	0.09
Barn Swallow		0.46	0.10			1.16		0.58	0.22	0.45
Common Raven		0.23				0.59		0.55	0.95	1.77
Rock Wren			0.10			0.03		0.03	0.14	
Bewick's Wren		0.54	1.20			0.57		0.39	0.73	0.55
Northern Mockingbird						0.24		0.19	0.03	0.23
Loggerhead Shrike						0.22		0.03	0.03	0.09
Yellow Warbler										0.09
Common Yellowthroat										0.14
Orange-crowned Warbler		1.15	1.20			1.43		0.29	1.27	0.91
Wilson's Warbler		0.15								
Black-headed Grosbeak						0.03				
Grasshopper Sparrow						0.08		0.06	0.11	
Dark-eyed Junco								0.03		
Song Sparrow		2.31	2.00			3.30		2.06	3.35	2.68
Spotted Towhee		1.62	1.50			2.27		1.84	1.84	2.09
Chipping Sparrow		1.85	1.60			2.27		1.35	2.14	1.55
Golden-crowned Sparrow									0.08	
White-crowned Sparrow									0.03	0.09
Western Meadowlark		2.15	2.20			3.59		1.52	1.86	1.95
Lesser Goldfinch		0.77	1.20			0.70		0.39	0.32	
House Finch		2.00	1.20			1.81		0.48	0.54	0.59
Number of sites sampled		13	10			37		31	37	22

Santa Rosa Island - Grassland

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mallard			0.88							0.16
Red-tailed Hawk			0.04			0.27		0.06	0.03	
Northern Harrier								0.06		0.05
Peregrine Falcon								0.06		
California Quail		0.04	0.04			0.23			0.03	0.05
Mourning Dove						0.17		0.06	0.07	
Anna's Hummingbird		0.04	0.04			0.03				
Rufous Hummingbird						0.03				
Allen's Hummingbird		0.13	0.33			0.13		0.24	0.10	0.11
Pacific-slope Flycatcher		0.42	0.33			0.33		0.18	0.50	0.26
Black Phoebe		0.13				0.07		0.06		0.05
Horned Lark		0.38	1.21			0.83		0.59	0.60	0.84
Barn Swallow		0.29	0.25			1.23		0.06	0.03	0.11
Common Raven		0.75	0.63			0.73		0.71	0.77	0.68
Rock Wren			0.17							
Bewick's Wren		0.63	1.17			0.50		0.65	0.60	0.53
Blue-gray Gnatcatcher									0.03	
Ruby-crowned Kinglet										0.05
Northern Mockingbird						0.23			0.07	0.11
Loggerhead Shrike		0.08							0.03	0.05
Hutton's Vireo			0.04							
Orange-crowned Warbler		0.54	0.67			1.23		0.35	1.67	0.68
Wilson's Warbler		0.08								
Grasshopper Sparrow						0.03			0.03	
Song Sparrow		1.42	1.42			2.47		0.94	2.27	1.42
Spotted Towhee		0.96	1.13			1.37		0.76	1.13	0.95
Chipping Sparrow		1.83	1.67			1.90		0.71	1.03	0.79
Western Meadowlark		2.13	2.88			2.60		2.18	2.33	2.68
Lesser Goldfinch		0.71	0.33			0.80		1.06	0.40	
House Finch		1.46	1.08			1.33		1.12	0.70	0.42
Number of sites sampled		24	24			30		17	30	19

Santa Rosa Island - Island chaparral

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk		0.21	0.05			0.03		0.12	0.10	0.08
Northern Harrier								0.08		
Peregrine Falcon						0.11				
American Kestrel	0.20	0.14	0.10			0.06				
California Quail	0.80	0.07	0.10			0.17				0.16
Mourning Dove		0.07				0.11			0.13	0.08
Anna's Hummingbird	0.20		0.20			0.11				
Rufous Hummingbird						0.03				
Allen's Hummingbird	0.80	0.43	0.50			0.14		0.08	0.20	0.48
Acorn Woodpecker						0.03				
Pacific-slope Flycatcher	0.80	0.79	0.85			0.97		0.48	0.90	0.76
Black Phoebe										0.04
Say's Phoebe								0.04	0.07	
Horned Lark			0.05						0.07	0.16
Barn Swallow		0.14	0.10			0.09				
Common Raven	0.20	0.29	0.50			0.71		0.64	0.87	0.60
Rock Wren						0.11		0.16	0.23	0.16
Bewick's Wren	2.00	1.36	1.80			1.74		0.88	2.50	1.12
Blue-gray Gnatcatcher									0.03	
Northern Mockingbird		0.14				0.11		0.08	0.13	0.04
Cedar Waxwing						0.71				0.04
Loggerhead Shrike						0.03			0.03	0.08
Hutton's Vireo			0.05			0.03			0.07	
Yellow-rumped Warbler									0.03	
Townsend's Warbler						0.03				
Orange-crowned Warbler	1.20	1.14	1.45			2.14		0.16	1.37	1.08
Song Sparrow		0.86	1.10			1.11		0.16	1.17	0.88
Spotted Towhee	0.80	1.36	1.95			3.31		1.40	1.93	2.96
Chipping Sparrow		1.50	0.70			1.26		0.68	1.33	0.48
White-crowned Sparrow									0.03	
Western Meadowlark	0.20	1.07	1.10			1.40		0.44	0.97	1.24
Lesser Goldfinch	0.20	0.64	1.45			1.51		0.36	0.33	
House Finch	1.80	0.79	1.60			2.86		1.00	1.00	0.56
Number of sites sampled	5	14	20			35		25	30	25

Santa Rosa Island - Island Oak

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk								0.33		
American Kestrel			0.27							
Mourning Dove						0.08			0.17	
White-throated Swift										2.33
Anna's Hummingbird		1.13				0.23				
Allen's Hummingbird			0.64			0.38		0.33	0.17	0.67
Northern Flicker			0.09							
Acorn Woodpecker									0.33	
Pacific-slope Flycatcher		0.88	0.18			1.62		1.67	2.17	3.33
Horned Lark						0.23			0.17	
Common Raven		0.13	0.18			0.31			0.67	3.67
Bewick's Wren		1.75	1.82			1.62		1.67	2.00	0.33
Hutton's Vireo						0.08				
Orange-crowned Warbler		0.63	1.55			1.69		1.67	1.33	1.00
Song Sparrow		0.38	0.55			1.46			0.50	1.00
Spotted Towhee		1.88	0.45			1.31		1.00	1.50	2.67
Chipping Sparrow		0.13				1.00			0.67	0.33
Western Meadowlark		0.25	0.64			0.62			0.83	1.67
Lesser Goldfinch		0.63	1.36			1.46		1.33	0.67	0.67
House Finch		0.50	0.91			1.23		0.67	0.17	
Number of sites sampled		8	11			13		3	6	3

Santa Rosa Island - Lupine scrub

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Northern Harrier						1.00		0.40		
California Quail								0.40	0.40	
Anna's Hummingbird						0.40				
Allen's Hummingbird									0.20	0.20
Horned Lark						0.40		1.20	1.40	0.80
Barn Swallow								0.20		
Common Raven						0.80		0.40	1.60	0.40
Bewick's Wren						1.20		1.80	1.40	0.40
Orange-crowned Warbler						2.00		1.00	2.20	1.60
Song Sparrow						3.80		1.20	3.40	4.20
Spotted Towhee						1.60		1.20	1.20	1.40
Chipping Sparrow									0.40	0.20
Western Meadowlark						2.00		1.00	2.60	3.40
Lesser Goldfinch						0.20		0.20	0.80	
House Finch								0.20		
Number of sites sampled						5		5	5	5

Santa Rosa Island - Mixed woodland

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk										0.20
American Kestrel		0.15				0.14				
California Quail		0.23	0.05			0.33				0.40
Mourning Dove			0.05			0.14				
Anna's Hummingbird	0.08	0.38				0.10				
Rufous Hummingbird						0.10				
Allen's Hummingbird	0.50	0.85	0.85			0.71		0.47	0.44	0.80
Northern Flicker			0.05					0.06		
Acorn Woodpecker								0.12		
Pacific-slope Flycatcher	0.83	0.38	0.70			1.43		1.47	1.44	0.80
Black Phoebe						0.05			0.11	0.20
Horned Lark			0.05			0.19				
Barn Swallow			0.05			0.14			0.22	
Common Raven	0.25	0.31	0.20			0.29		0.47	0.78	0.80
Red-breasted Nuthatch						0.05				
Rock Wren						0.10				
Bewick's Wren	1.00	1.92	1.90			1.86		0.88	1.89	0.80
Ruby-crowned Kinglet										0.40
Northern Mockingbird						0.10				0.20
Loggerhead Shrike								0.12		
Hutton's Vireo						0.05			0.56	
Orange-crowned Warbler	0.92	1.31	1.60			1.86		0.65	3.00	1.20
Grasshopper Sparrow						0.05				
Song Sparrow		0.38	0.20			1.76		0.12	0.78	1.00
Spotted Towhee	1.42	1.00	1.25			2.43		1.18	1.67	1.40
Chipping Sparrow		0.85	0.95			0.90		0.71	1.78	1.20
Golden-crowned Sparrow						0.05				
Western Meadowlark	0.17	0.31	0.40			0.81		0.06	0.67	1.60
Lesser Goldfinch		0.23	0.75			1.67		0.47	0.33	0.40
House Finch	0.83	1.69	1.60			3.10		1.76	3.22	0.80
Number of sites sampled	12	13	20			21		17	9	5

Santa Rosa Island - Riparian

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mallard	0.35	0.30	0.46			0.04				
Red-tailed Hawk	0.25	0.10	0.12			0.11		0.04		0.17
Bald Eagle								0.04		0.17
Peregrine Falcon	0.05		0.08						0.13	
American Kestrel	0.20	0.20	0.15							
California Quail		0.35				0.07		0.07	0.25	0.33
Virginia Rail									0.13	
Mourning Dove	0.05					0.04				
White-throated Swift	0.15					0.04		0.14		
Anna's Hummingbird	0.05		0.08			0.11		0.11		
Rufous Hummingbird						0.11				
Allen's Hummingbird	0.70	0.95	0.42			0.86		0.71	0.63	0.83
Northern Flicker	0.05	0.10	0.08							
Pacific-slope Flycatcher	0.30	0.25	0.15			1.64		0.86	1.00	0.83
Black Phoebe	0.15	0.05	0.15			0.14				0.17
Horned Lark			0.31							
Barn Swallow		0.20	0.15			0.54				
Common Raven	0.75	0.40	0.50			0.50		1.04	1.38	0.67
Bushtit									0.25	
Rock Wren		0.15	0.15			0.18		0.11	0.13	0.17
Bewick's Wren	1.80	2.05	2.08			1.68		1.21	0.75	0.67
Hermit Thrush		0.05								
Northern Mockingbird			0.04					0.07	0.25	0.67
Loggerhead Shrike		0.10				0.14		0.07		
Hutton's Vireo						0.04				
Yellow-rumped Warbler			0.08							
Orange-crowned Warbler	1.85	1.55	1.42			2.39		2.25	2.13	1.33
Wilson's Warbler						0.04				
Song Sparrow	0.85	0.90	1.46			2.18		0.93	2.00	1.33
Spotted Towhee	0.45	0.95	0.69			1.96		1.07	1.13	0.83
Chipping Sparrow		0.25	0.23			1.14		0.68	1.38	1.00
Golden-crowned Sparrow		0.10								
White-crowned Sparrow	0.10									
Western Meadowlark	0.30	0.65	0.62			0.57		0.46	1.50	1.33
Lesser Goldfinch		0.75	0.50			1.32		0.46	0.38	0.33
American Goldfinch	0.05		0.04							
House Finch	1.25	1.40	1.77			2.00		1.86	0.63	0.33
Number of sites sampled	20	20	26			28		28	8	6

Santa Rosa Island - Riparian herbaceous

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Mallard										1.00
Red-tailed Hawk						1.00			0.25	0.50
Bald Eagle										0.50
California Quail						0.25				
Allen's Hummingbird			0.33					0.75	0.50	
Pacific-slope Flycatcher						1.00				
Horned Lark			0.33			0.75			0.25	
Barn Swallow						0.25			0.50	
Common Raven						0.25		0.50	0.25	0.50
Rock Wren						0.75		0.25		
Bewick's Wren			1.00			1.25			0.50	0.50
Loggerhead Shrike									0.25	0.50
Orange-crowned Warbler			1.67			2.00		1.00	2.25	0.50
Song Sparrow			2.00			2.50		1.00	1.25	2.50
Spotted Towhee			0.67			1.50		0.75	1.25	0.50
Chipping Sparrow						2.00		1.75	1.00	
Red-winged Blackbird									1.25	
Western Meadowlark			0.67			1.50		1.25	1.00	2.50
Lesser Goldfinch						2.25			0.75	
House Finch			2.00			1.75			2.00	
Number of sites sampled			3			4		4	4	2

Santa Rosa Island - Riparian woodland

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk										0.33
Peregrine Falcon								0.25		
California Quail						0.25				0.33
White-throated Swift			0.33							1.00
Anna's Hummingbird			0.33			0.25				
Allen's Hummingbird			0.33					0.75	0.50	1.33
Pacific-slope Flycatcher			0.33			1.50		1.25	0.75	0.33
Black Phoebe						0.25				0.33
Barn Swallow						0.50			1.75	
Common Raven						1.25		1.50	0.50	0.67
Bushtit										0.33
Rock Wren								0.25	0.75	
Bewick's Wren			1.67			2.75		0.75	1.50	1.33
Northern Mockingbird								0.25	0.25	0.33
Loggerhead Shrike										1.33
Orange-crowned Warbler			0.67			3.00		2.75	2.50	1.67
Song Sparrow			2.00			1.50		1.25	0.75	
Spotted Towhee			1.00			1.25		1.25	2.00	1.33
Chipping Sparrow			0.33			1.50		0.50	1.50	1.33
Western Meadowlark						0.50		0.25	0.25	1.00
Lesser Goldfinch						1.75		0.50	0.50	
House Finch			1.67			2.25		2.75	1.25	0.33
Number of sites sampled			3			4		4	4	3

Santa Rosa Island - Torrey pine

Common Name	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Red-tailed Hawk			0.06					0.06		
California Quail		0.07	0.19			0.19		0.13		
Mourning Dove						0.25				
Anna's Hummingbird						0.25		0.13		0.17
Allen's Hummingbird		0.73	0.50			0.31		0.56	0.50	0.33
Pacific-slope Flycatcher		0.93	1.56			1.81		0.81	0.83	0.67
Horned Lark			0.25			0.31		0.25		0.33
Barn Swallow		0.20	0.13			0.13			0.17	0.50
Common Raven		0.47	0.13			0.19				0.17
Bewick's Wren		0.93	1.31			1.38		1.13	1.67	0.50
Ruby-crowned Kinglet										0.17
Northern Mockingbird										0.17
Common Yellowthroat										0.67
Orange-crowned Warbler		1.33	0.69			1.56		0.50	1.00	0.33
Song Sparrow		0.07				0.38		0.13	0.33	0.33
Spotted Towhee		1.00	0.88			1.88		0.75	1.67	1.17
Chipping Sparrow		0.67	2.19			2.50		0.69	0.83	0.67
Western Meadowlark		0.67	0.88			1.50		0.69	0.83	1.00
Lesser Goldfinch		0.47	0.75			1.75		1.75	1.00	0.17
House Finch		2.53	3.94			3.63		2.94	1.17	1.50
Number of sites sampled		15	16			16		16	6	6