



Landbird Monitoring 2011 Annual Report

Channel Islands National Park

Natural Resource Data Series NPS/MEDN/NRDS—2011/214



ON THE COVER

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

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Timothy J. Coonan

National Park Service
Channel Islands National Park
1901 Spinnaker Drive
Ventura, CA, 93001

Linda C. Dye

National Park Service
Channel Islands National Park
1901 Spinnaker Drive
Ventura, CA, 93001

Steven G. Fancy

National Park Service
Inventory and Monitoring Division
1201 Oak Ridge Drive, Suite 150
Fort Collins, CO, 80525

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The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado publishes a range of reports that address natural resource topics of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

The Natural Resource Data Series is intended for the timely release of basic data sets and data summaries. Care has been taken to assure accuracy of raw data values, but a thorough analysis and interpretation of the data has not been completed. Consequently, the initial analyses of data in this report are provisional and subject to change.

All manuscripts in the series receive the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.

Data in this report were collected and analyzed using methods based on established, peer-reviewed protocols and were analyzed and interpreted within the guidelines of the protocols.

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Summary of Landbird Monitoring in 2011

Monitoring of landbirds using methods in place since 2001 (van Riper III et al. 1988, Coonan et al. 2011, Coonan et al. in prep.) was conducted between March 2, 2011 and June 1, 2011 on four islands. No fall surveys were conducted. Tour dates are summarized in Table 1. One line transect was surveyed on Anacapa Island in early March, and otherwise all monitoring was conducted with 10-minute point counts. The total number of individuals of each species that was detected on all four islands combined in 2011 is summarized in Table 2.

Table 1. Start and end dates of landbird monitoring survey tours on each island in 2011, with the number of line transects or 10-minute point counts listed for each tour.

Island	Start Date	End Date	Tour Code	# Transects	# Point Counts
Anacapa	3/02/2011	3/07/2011	A	1	4
Anacapa	3/08/2011	3/09/2011	C		1
Santa Barbara	3/02/2011	3/09/2011	B		11
Santa Barbara	4/05/2011	4/12/2011	F		5
San Miguel	4/05/2011	4/12/2011	E		17
San Miguel	4/21/2011	4/22/2011	H		6
San Miguel	4/30/2011	5/02/2011	I		6
San Miguel	5/04/2011	5/08/2011	J		10
San Miguel	5/13/2011	5/16/2011	L		4
Santa Rosa	3/17/2011	3/18/2011	D		16
Santa Rosa	4/16/2011	4/19/2011	G		27
Santa Rosa	5/03/2011	5/08/2011	K		29
Santa Rosa	5/26/2011	6/01/2011	M		47

Table 2. Number of individuals of each species detected during bird surveys on four islands in 2011. 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	Species Code	# Detected
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	ACWO	1
Allen's Hummingbird	<i>Selasphorus sasin</i>	ALHU	49
American Kestrel	<i>Falco sparverius</i>	AMKE	2
Anna's Hummingbird	<i>Calypte anna</i>	ANHU	1
Barn Swallow	<i>Hirundo rustica</i>	BASW	7
Bewick's Wren	<i>Thryomanes bewickii</i>	BEWR	159
Black Oystercatcher	<i>Haematopus bachmani</i>	BLOY	3
Black Phoebe	<i>Sayornis nigricans</i>	BLPH	6
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	BRBL	1
Bushtit	<i>Psaltiriparus minimus</i>	BUSH	1
California Quail	<i>Callipepla californica</i>	CAQU	1
Chipping Sparrow	<i>Spizella passerina</i>	CHSP	110
Common Raven	<i>Corvus corax</i>	CORA	90
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	ECDO	1
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	GCSP	3
Great Egret	<i>Ardea alba</i>	GREG	1
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	GRSP	4
Hermit Thrush	<i>Catharus guttatus</i>	HETH	1

House Finch	<i>Carpodacus mexicanus</i>	HOFI	150
Horned Lark	<i>Eremophila alpestris</i>	HOLA	136
Hutton's Vireo	<i>Vireo huttoni</i>	HUVI	4
Lesser Goldfinch	<i>Carduelis psaltria</i>	LEGO	28
Loggerhead Shrike	<i>Lanius ludovicianus</i>	LOSH	5
Merlin	<i>Falco columbarius</i>	MERL	1
Northern Flicker	<i>Colaptes auratus</i>	NOFL	2
Northern Mockingbird	<i>Mimus polyglottos</i>	NOMO	5
Orange-crowned Warbler	<i>Vermivora celata</i>	OCWA	204
Peregrine Falcon	<i>Falco peregrinus</i>	PEFA	1
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	PSFL	55
Red-breasted Nuthatch	<i>Sitta canadensis</i>	RBNU	2
Rock Wren	<i>Salpinctes obsoletus</i>	ROWR	8
Red-tailed Hawk	<i>Buteo jamaicensis</i>	RTHA	5
Say's Phoebe	<i>Sayornis saya</i>	SAPH	6
Song Sparrow	<i>Melospiza melodia</i>	SOSP	418
Spotted Towhee	<i>Pipilo maculatus</i>	SPTO	224
Townsend's Warbler	<i>Dendroica townsendi</i>	TOWA	1
Turkey Vulture	<i>Cathartes aura</i>	TUVU	1
Warbling Vireo	<i>Vireo gilvus</i>	WAVI	1
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	WCSP	15
Western Meadowlark	<i>Sturnella neglecta</i>	WEME	324
Wilson's Warbler	<i>Wilsonia pusilla</i>	WIWA	1
White-throated Swift	<i>Aeronautes saxatalis</i>	WTSW	1
Yellow Warbler	<i>Dendroica petechia</i>	YEWA	1

In Fall 2011, the landbird monitoring database and protocol were updated, and some of the new data analysis and graphing routines are used for this report. For point count surveys, the abundance and occurrence of each species on each island is summarized for Anacapa Island (Table 3), Santa Barbara Island (Table 4), San Miguel Island (Table 5), and Santa Rosa Island (Table 6).

Table 3. Summary statistics for point count surveys on Anacapa Island in 2011. The total number of individuals of each species detected during 5 point counts is shown, along with the mean and standard error for the 5 stations counted, the number of stations on which the species was detected, and the percent of stations on which the species was detected.

Species	Common Name	#Detected	Mean	S.E.	# Stns	% Stns
BEWR	Bewick's Wren	3	0.6	0.24	3	60
OCWA	Orange-crowned Warbler	5	1.0	0.55	3	60
ROWR	Rock Wren	1	0.2	0.20	1	20
SAPH	Say's Phoebe	4	0.8	0.49	2	40
SOSP	Song Sparrow	3	0.6	0.24	3	60
WCSP	White-crowned Sparrow	8	1.6	1.60	1	20
WEME	Western Meadowlark	4	0.8	0.49	2	40

Table 4. Summary statistics for point count surveys on Santa Barbara Island in 2011. The total number of individuals of each species detected during 16 point counts is shown, along with the mean and standard error for the 16 stations counted, the number of stations on which the species was detected, and the percent of stations on which the species was detected.

Species	Common Name	#Detected	Mean	S.E.	# Stns	% Stns
AMKE	American Kestrel	2	0.12	0.09	2	12.5
GREG	Great Egret	1	0.06	0.06	1	6.2
HOLA	Horned Lark	89	5.56	0.84	15	93.8
OCWA	Orange-crowned Warbler	3	0.19	0.19	1	6.2
ROWR	Rock Wren	1	0.06	0.06	1	6.2
SAPH	Say's Phoebe	4	0.25	0.14	3	18.8
WCSP	White-crowned Sparrow	19	1.19	0.53	6	37.5
WEME	Western Meadowlark	54	3.38	0.55	14	87.5

Table 5. Summary statistics for point count surveys on San Miguel Island in 2011. The total number of individuals of each species detected during 40 point counts is shown, along with the mean and standard error for the 40 stations counted, the number of stations on which the species was detected, and the percent of stations on which the species was detected.

Species	Common Name	#Detected	Mean per Stn	S.E.	# Stns	% Stns
ALHU	Allen's Hummingbird	17	0.40	0.16	8	18.6
ANHU	Anna's Hummingbird	1	0.02	0.02	1	2.3
BASW	Barn Swallow	2	0.05	0.05	1	2.3
BLOY	Black Oystercatcher	6	0.14	0.09	3	7.0
BRBL	Brewer's Blackbird	1	0.02	0.02	1	2.3
CORA	Common Raven	81	1.88	0.35	30	69.8
ECDO	Eurasian Collared Dove	1	0.02	0.02	1	2.3
GCSP	Golden-crowned Sparrow	3	0.07	0.04	3	7.0
GRSP	Grasshopper Sparrow	2	0.05	0.05	1	2.3
HETH	Hermit Thrush	1	0.02	0.02	1	2.3
HOFI	House Finch	32	0.74	0.21	14	32.6
HOLA	Horned Lark	80	1.86	0.43	20	46.5
MERL	Merlin	1	0.02	0.02	1	2.3
OCWA	Orange-crowned Warbler	92	2.14	0.29	33	76.7
PEFA	Peregrine Falcon	1	0.02	0.02	1	2.3
ROWR	Rock Wren	3	0.07	0.04	3	7.0
RTHA	Red-tailed Hawk	1	0.02	0.02	1	2.3
SOSP	Song Sparrow	228	5.30	0.39	41	95.3
TOWA	Townsend's Warbler	1	0.02	0.02	1	2.3
TUVU	Turkey Vulture	1	0.02	0.02	1	2.3
WAVI	Warbling Vireo	2	0.05	0.05	1	2.3
WCSP	White-crowned Sparrow	4	0.09	0.06	3	7.0
WEME	Western Meadowlark	94	2.19	0.32	28	65.1
WIWA	Wilson's Warbler	1	0.02	0.02	1	2.3
YEWA	Yellow Warbler	1	0.02	0.02	1	2.3

Table 6. Summary statistics for spring point count surveys on Santa Rosa Island in 2011. The total number of individuals of each species detected during 117 point counts is shown, along with the mean and standard error for the 117 stations counted, the number of stations on which the species was detected, and the percent of stations on which the species was detected.

Species	Common Name	#Detected	Mean per Stn	S.E.	# Stns	% Stns
ACWO	Acorn Woodpecker	2	0.02	0.02	1	0.9
ALHU	Allen's Hummingbird	35	0.30	0.05	29	24.8
BASW	Barn Swallow	12	0.10	0.04	6	5.1
BEWR	Bewick's Wren	156	1.33	0.11	85	72.6
BLPH	Black Phoebe	5	0.04	0.02	4	3.4
BUSH	Bushtit	6	0.05	0.05	1	0.9
CAQU	California Quail	1	0.01	0.01	1	0.9
CHSP	Chipping Sparrow	110	0.94	0.11	60	51.3
CORA	Common Raven	56	0.48	0.08	35	29.9
GRSP	Grasshopper Sparrow	2	0.02	0.01	2	1.7
HOFI	House Finch	182	1.56	0.19	61	52.1
HOLA	Horned Lark	10	0.09	0.05	4	3.4
HUVI	Hutton's Vireo	4	0.03	0.02	3	2.6
LEGO	Lesser Goldfinch	47	0.40	0.12	19	16.2
LOSH	Loggerhead Shrike	5	0.04	0.02	4	3.4
NOFL	Northern Flicker	2	0.02	0.01	2	1.7
NOMO	Northern Mockingbird	5	0.04	0.02	5	4.3
OCWA	Orange-crowned	111	0.95	0.10	64	54.7
PSFL	Pacific-slope	57	0.49	0.08	36	30.8
RBNU	Red-breasted	2	0.02	0.01	2	1.7
ROWR	Rock Wren	3	0.03	0.02	2	1.7
RTHA	Red-tailed Hawk	4	0.03	0.02	3	2.6
SOSP	Song Sparrow	199	1.70	0.15	83	70.9
SPTO	Spotted Towhee	224	1.91	0.15	93	79.5
WEME	Western Meadowlark	177	1.51	0.15	76	65.0
WTSW	White-throated Swift	2	0.02	0.02	1	0.9

The mean birds per station detected during 2011 surveys on each island is summarized below in Figure 1 for Anacapa and Santa Barbara islands, and Figure 2 for San Miguel and Santa Rosa islands. The mean birds per station for each species in 2011, shown by the triangle, is put in context by comparing it to mean values for all point counts on each island conducted since 1993. On Anacapa Island, for example, note that the birds per station for White-crowned Sparrow and Say's Phoebe in 2011 were higher than in past years, whereas the means for Orange-crowned Warbler and Bewick's Wren were lower than in past years. On San Miguel Island, the highest-ever mean abundances were recorded for Allen's Hummingbird, House Finch, Horned Lark, Song Sparrow, and Western Meadowlark.

The species richness graphics in Figures 3-5 summarize patterns of species occurrences on each island since 1993. This particular analysis includes data from both line transects and point counts, but does not include incidental observations of species done outside of the formal line transect or 10-minute point counts (e.g., species observed while en route between counting

stations are not included). These graphs can be used to answer the questions, “are any new species starting to show up on the island, or are we no longer seeing any species that used to be here”? On Anacapa Island, Yellow-rumped Warblers have not been detected during counts since 1996, European Starlings were last detected in 1998, and American Kestrels were last detected in 2001. On Santa Barbara Island, European Starlings were last detected in 1997, and Merlins have not been detected during counts since 1998. On San Miguel Island, Wilson Warblers first started showing up in 2006, and Townsend’s Warbler began being detected on counts in 2007. On Santa Rosa, European Starlings were last detected on counts in 1998.

Figure 1. Mean birds per station for species detected on Anacapa and Santa Barbara islands in 2011, compared to means for previous years. The triangle shows the mean value for 2011. Boxplots for each species summarize data for past years: the vertical line within the box is the median, the leftmost side of the box is the 25% quartile, the rightmost side is the 75% quartile, with outliers outside of the box.

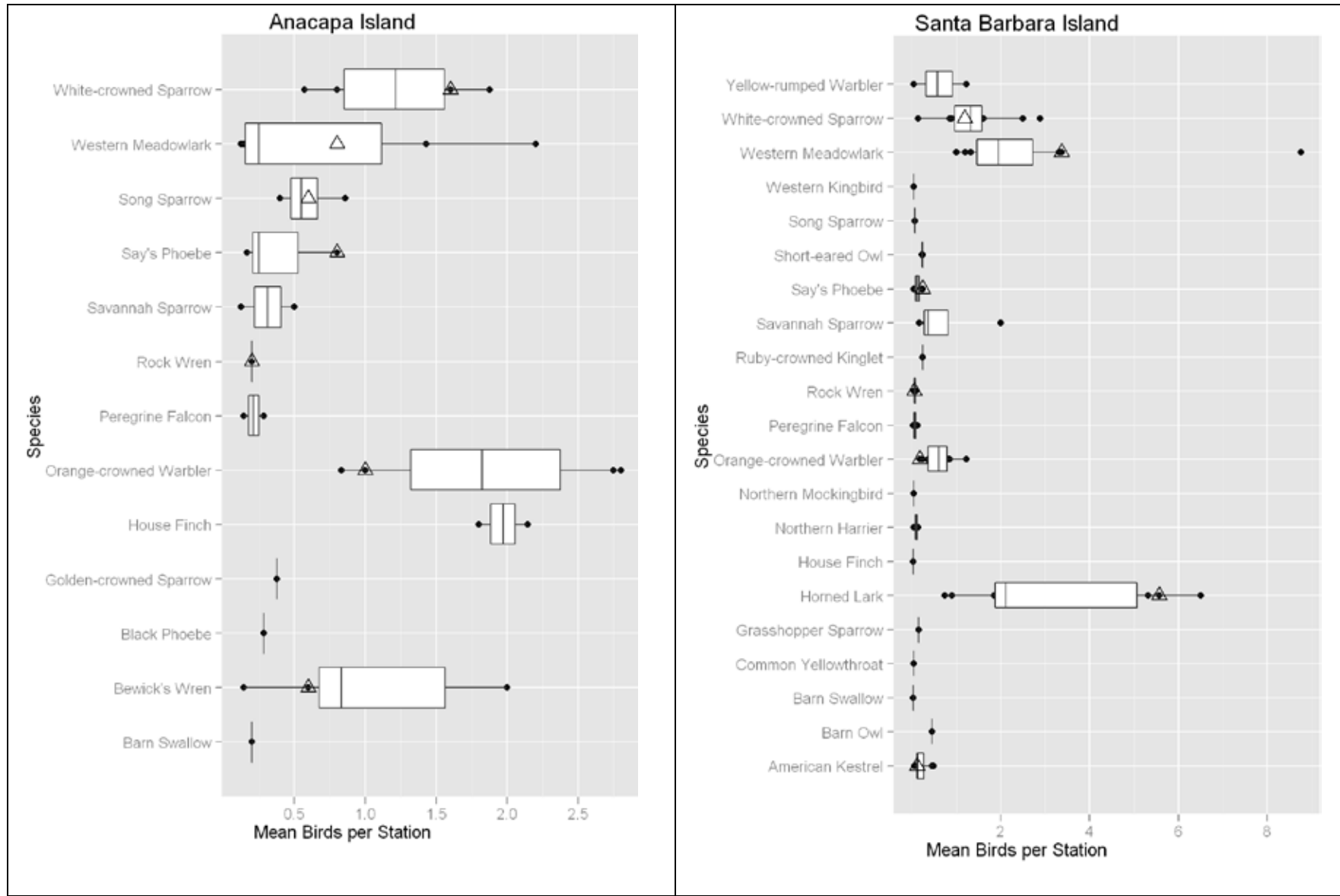


Figure 2. Mean birds per station for species detected on San Miguel and Santa Rosa islands in 2011, compared to means for previous years. The triangle shows the mean value for 2011. Boxplots for each species summarize data for past years: the vertical line within the box is the median, the leftmost side of the box is the 25% quartile, the rightmost side is the 75% quartile, with outliers outside of the box.

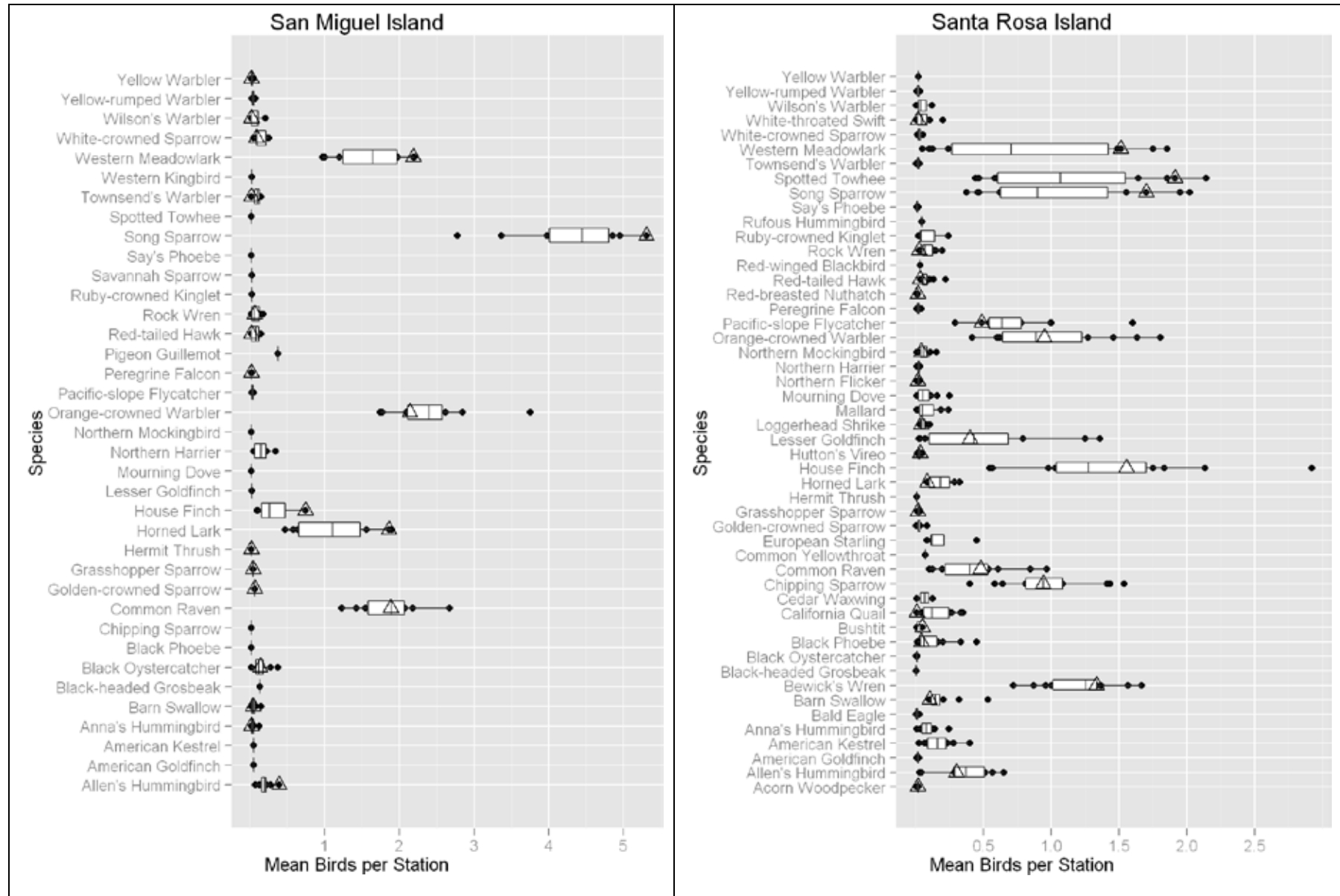


Figure 3. Patterns of species occurrences on Anacapa and Santa Barbara islands between 1993-2011. A dot for a particular species and year indicates that the species was detected on either a line transect or point count during that year. For example, note that Yellow-rumped Warblers and European Starlings have not been detected on Anacapa Island since the 1990s.

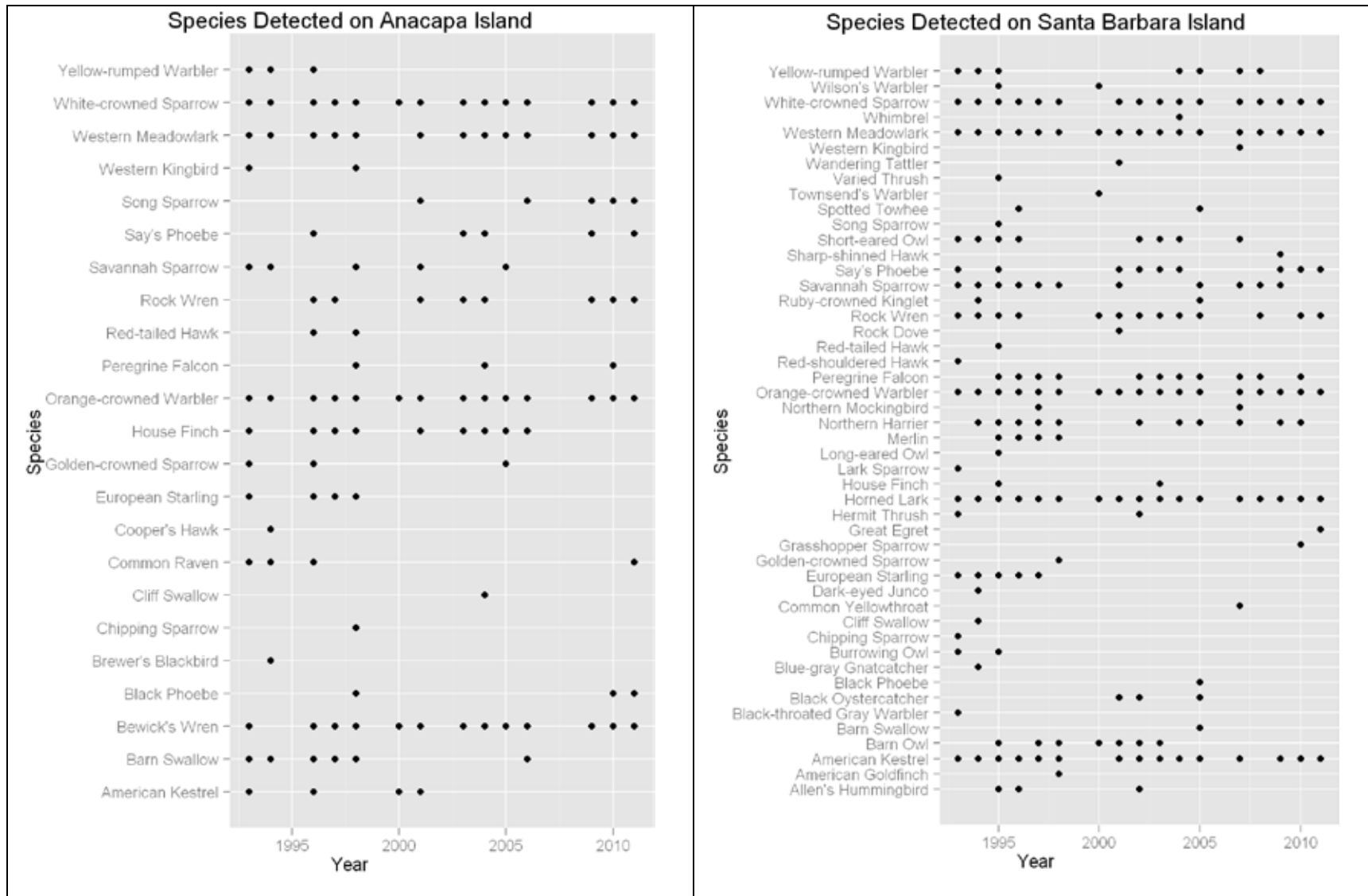


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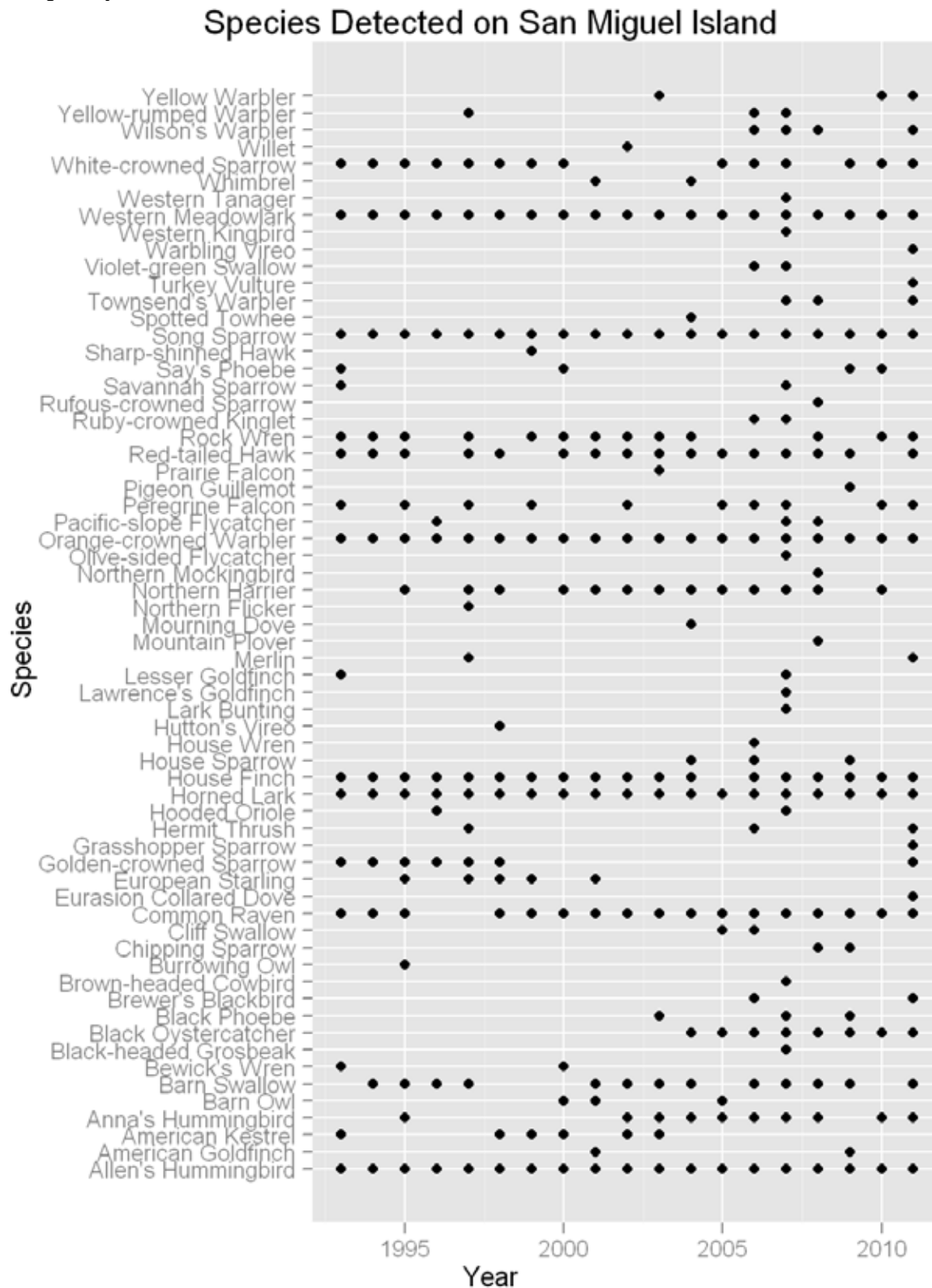
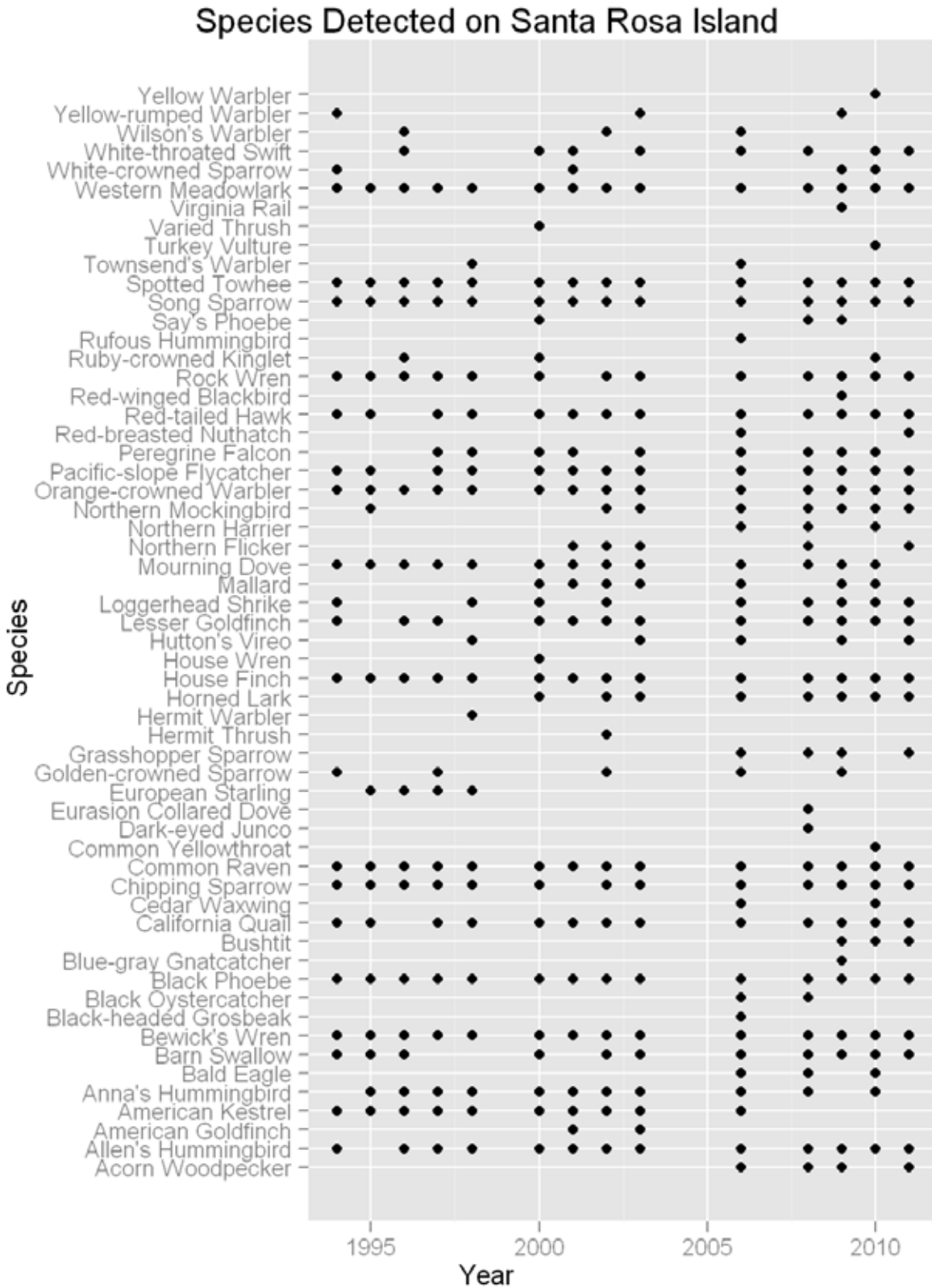


Figure 5. Patterns of species occurrences on Santa Rosa Island between 1993-2011. A dot for a particular species and year indicates that the species was detected on either a line transect or point count during that year.



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