BTO Research Report No. 546

Within-Site Waterbird Trends Relative to Whole-Site, Regional and National Population Trends: Dungeness, Romney Marsh and Rye Bay SSSI

Authors

Graham Austin and Neil Calbrade

Report carried out by the British Trust for Ornithology
under contract to Natural England

March 2010

British Trust for Ornithology, The Nunnery, Thetford, IP24 2PU
Charity No. 21665

CONTENTS

Page No.

Page No.

LIST OF TABLES

Page No.

LIST OF FIGURES

Page No.

LIST OF APPENDICES

Page No.

Executive Summary

Natural England as the relevant competent authority in England must consider notices for operations on the Dungeness, Romney Marsh and Rye Bay SSSI. One of the major considerations in consenting activities and undertaking/advising on appropriate assessments is the likely impact of the proposed activity or development on SSSI birds.

To this end, Wetland Bird Survey (WeBS) data is used to calculate and compare species trends for the SSSI and component units with the aim of gaining a better understanding of fluctuations in bird numbers on the site both temporally and spatially and thus inform the assessment the potential impacts of activities and developments on SSSI populations.

Monthly waterbird counts have been conducted in the UK for Wetland Bird Survey for over 50 years. Since 1993 data have been collated at the level of the count section. These count sectors, while being chosen principally to facilitate count recording, have frequently being aligned to natural ecological boundaries or physical features. Consequently, biologically meaningful interpretations of waterbird trends on these count sectors is possible.

- Thus, this report describes, for each of 21 waterbird species (for which there is sufficient data to support analysis), trends on each WeBS count sector, how this compares to the trend across the entire site and puts this into the context of the broad-scale regional pattern.

- It is not in the remit of this report to attempt to identify drivers of any observed changes in waterbird numbers. However, the report contains all the WeBS parameters identified in the Natural England paper "Natural England's approach to assessing and responding to wildfowling notices on SSSIs and European sites" with particular reference to sections 7.7 and Appendices 1 & 4.

- In overview, our analysis suggests that the Dungeness, Romney Marsh and Rye Bay SSSI is in a favourable state for most of the species for which WeBS provides sufficient data for meaningful analysis. While some species (including Bewick's Swan, European White-fronted Goose, Pochard) are declining across the site as a whole most of these declines can be explained in terms of broad-scale regional or national patterns.

- Within the site, however, our analyses suggest that some areas within the SSSI where adverse pressure may be driving downward trends. On Walland Marsh and Fairfield various species of dabbling duck species are declining in numbers contrary to what would be expected in the light of trends across the site as a whole. Declines are also apparent for a number of diving duck species across a range of count sections although here declines from least favoured areas would be expected in any case given regional declines. We also note that Dungeness Gravel Pits appear to have become less favourable for roosting Lapwing and Golden Plover that presumably roost around the water margins although this contrasts with waterbodies themselves where numbers of dabbling duck species have generally increased.

1. INTRODUCTION

1.1 Background

The Dungeness, Romney Marsh and Rye Bay SSSI is a nationally important site comprising a diverse range of habitats which includes all or parts of eight previously notified SSSIs to include the coastal geomorphology, salt marshes, breeding, wintering and passage birds, lowland ditch systems, and plant and invertebrate assemblages. The SSSI covers over 9,000ha and regularly supports an assemblage of over 20,000 waterfowl in the non-breeding season, comprising more than 60 species, seventeen of which regularly winter in nationally important numbers.

Under the Wildlife and Countryside Act 1981 (as amended by CRoW Act 2000) Natural England (NE) must consider notices for operations on the Dungeness, Romney Marsh and Rye Bay SSSI, such as development or land management, and determine whether to consent or refuse these proposals, or to impose conditions on the way they are carried out. Under the auspices of the Conservation (Natural Habitats &c.) Regulations 1994, Natural England also undertakes and advises on appropriate assessments concerning the effects of plans and projects on the SSSI. One of the major considerations in consenting activities and undertaking/advising on appropriate assessments is the likely impact of the proposed activity or development on SSSI birds.

To this end, an analysis of information on trends across the entire site and how these relate to regional and country-wide population trends informs as to which waterbird species give particular cause for concern across the SSSI as a whole. This information can be obtained from the WeBS-Alerts report (**Maclean and Austin 2008**). To help Natural England understand how waterbirds may be redistributing within the site and identify areas where there has been a net loss or gain relative to numbers across the whole site, Wetland Bird Survey (WeBS) data is used here to calculate and compare species trends for the SSSI and component units. This will in turn contribute towards gaining a better understanding of fluctuations in bird numbers on the site both temporally and spatially and thus inform the assessment of the potential impacts of activities and developments on SSSI populations.

1.2 Objectives

Thus the objectives of this report are to gain a site-wide understanding of fluctuations in numbers of certain waterbird species to inform the consenting of operations and appropriate assessments of plans and projects on the Dungeness, Romney Marsh and Rye Bay SSSI by:

- identifying the abundance trends over the last 15 years in each of the WeBS count sectors of the Dungeness, Romney Marsh and Rye Bay SSSI for waterbirds and comparing these trends to the site as a whole.

- identifying abundance trends over the last 15 years and compare trends for each of the individual sectors against the trends for the whole site data and relevant discrete sub-site sector-consolidations (the latter will be dictated by data availability).

- identifying WeBS sectors with significant numbers of species that are increasing more rapidly or declining more rapidly than across the whole site or relevant discrete sub-site sector-consolidations.

  identifying species in each WeBS sector and indicate their significance to the whole site and relevant discrete sub-site sector-consolidations by showing the percentage of that species in the sector against the whole site and relevant discrete sub-site sector-consolidations (the latter will be dictated by data availability).

2. METHODS

2.1 Waterbird Data

WeBS is a long-running survey that monitors waterbird numbers on sites throughout the UK by monthly site visits when numbers of all waterbird species are recorded (Holt et al 2009). On large sites, such as the Dungeness, Romney Marsh and Rye Bay SSSI area, where it is not feasible, or indeed desirable, to make a single count for the entire site, synchronous counts of smaller count sectors are undertaken. These sector counts are routinely summed to give the overall site total and during this process the completeness of the overall count assessed. This is necessary because all sectors are not necessarily counted on all occasions. This is undertaken in a species specific manner because the absence of data from a given section would not be expected to affect the overall total equally for all species. Furthermore, completeness is assessed on a month by month, year by year basis using algorithms that allow for both seasonal and long-term trends in site usage. Thus a consolidated count for a site composed of multiple sectors is considered complete when those sectors counted on the month in question would be expected to hold at least 75% of the site total for the species in question for the season and year in question. Whilst the division of large sites into sectors has evolved principally in response to the practicality of undertaking counts, the divisions between sectors typically follow distinctive features of the environment. Thus an analysis of waterbird trends on the individual sectors can inform in a biologically meaningful manner.

From an initial list of 42 species supplied by Natural England because of their interest as notified features of the SSSI sufficient data were available from WeBS to assess the trends of 21 species for the SSSI as a whole and, at least some of the count sectors. The species for which trends are assessed are as follows:

Mute Swan	Wigeon	Cormorant
Bewick's Swan	Gadwall	Moorhen
European White-fronted Goose	Teal	Coot
Greylag Goose	Mallard	Little Grebe
	Pintail	Great Crested Grebe
	Shoveler	Golden Plover
	Pochard	Lapwing
	Tufted duck	Sanderling
	Goldeneye	

Species not assessed from the initial list include non-waterbirds (passerines, game birds and raptors) that are not covered by WeBS counts, waterbirds that occur too infrequently or in numbers too low to allow meaningful interpretation of trends (including Pink-footed Goose *Anser brachyrhynchus*, Bittern *Botaurus stellaris,* Ruff *Philomachus pugnax* and Whimbrel *Numenius phaeopus*) including rare breeding species (Garganey *Anas querquedula*, Avocet *Recurvirostra avocetta*), colonial breeding species (gulls and terns) and species with particularly cryptic behaviour that does not lend itself to monitoring of trends by standard WeBS methodology (Snipe *Gallinago galinago*, Woodcock *Scolopax rusticola,* Water Rail *Rallus aquaticus*).

2.2 Spatial Coverage

There are twenty-two WeBS count sectors contained within sites monitored by WeBS and that overlap, at least in part, with the Dungeness, Romney Marsh and Rye Bay SSSI (Figure 2.1.i). Over time a hierarchical structure of count sectors has evolved (Figures 2.1.ii & 2.1.iii) for recording waterbird counts as existing sectors have been subdivided. Where this subdivision has occurred in recent years, it is necessary to recombine the counts into the older division in order to generate long-term trends. It should be noted that some count sectors of the WeBS monitoring sites are partly or entirely outside the boundary of the SSSI (see Figure 2.1.i) but their inclusion here can be justified as

they could be considered an important functional part of the SSSI because birds move readily between areas outside and inside the SSSI.

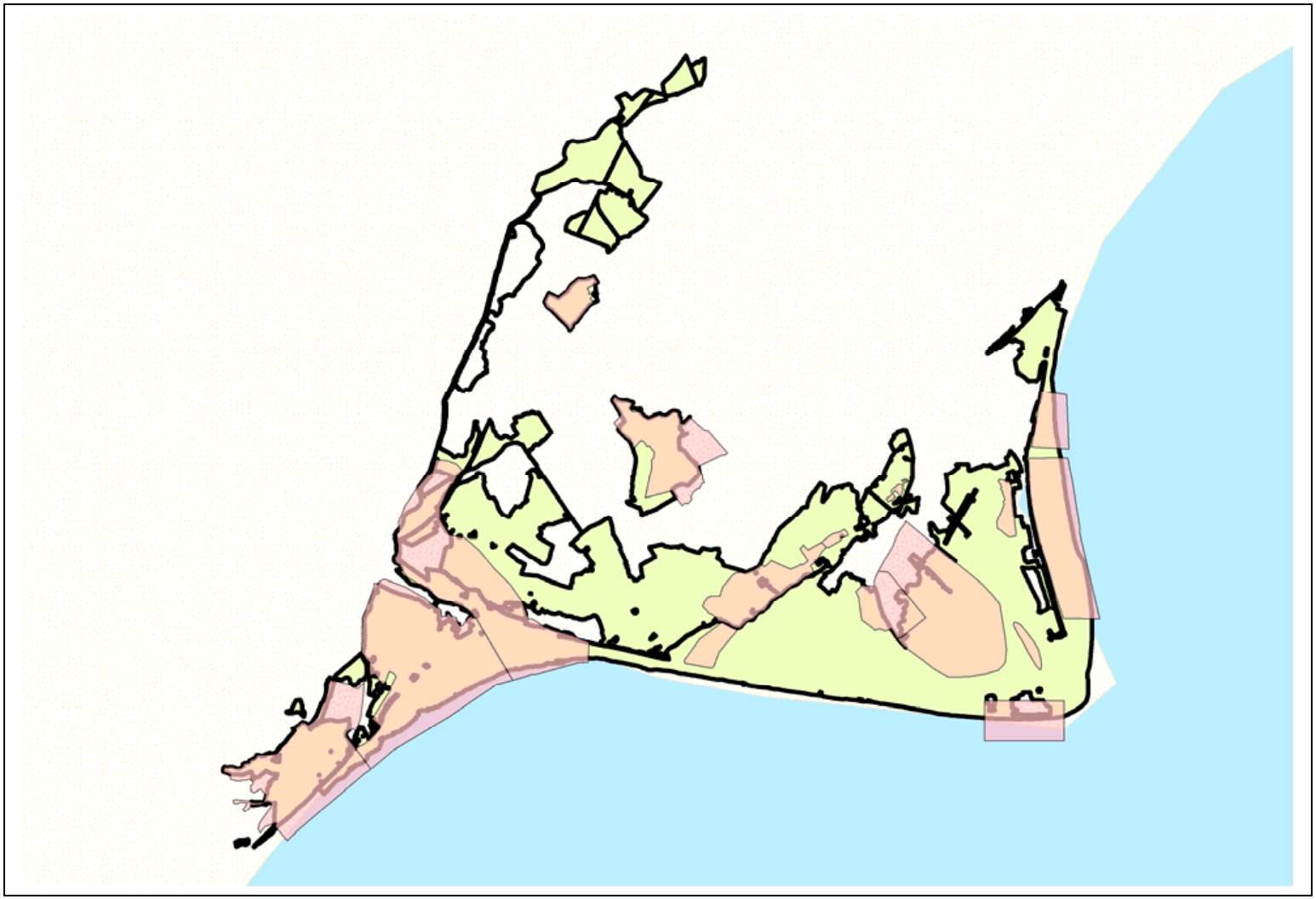


Figure 2.2.i: WeBS count sections (red with narrow outline) relative to the full extent of Dungeness, Romney Marsh and Rye Bay SSSI (green with thick outline).

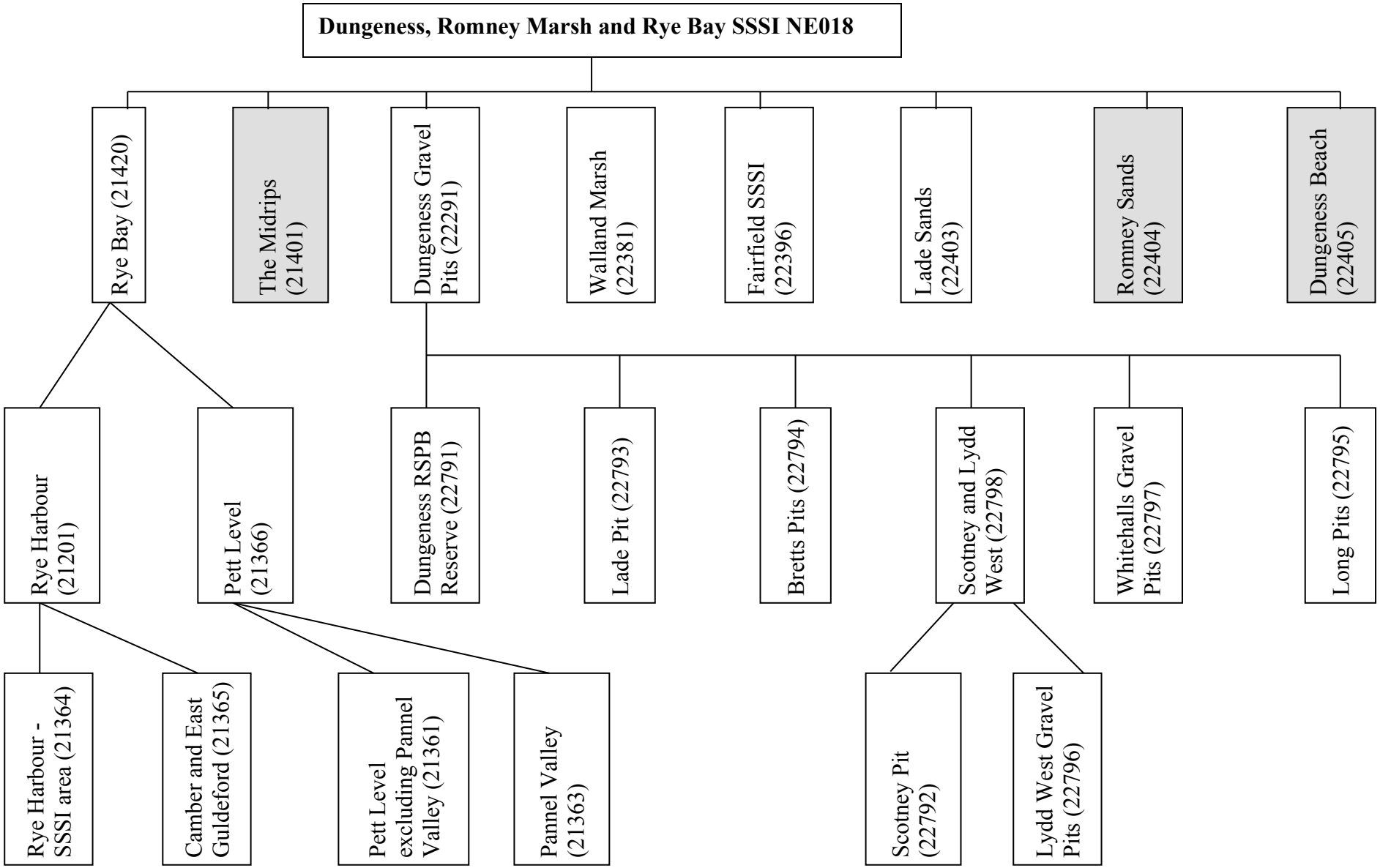


Figure 2.2.ii: WeBS site structure for Dungeness, Romney Marsh and Rye Bay SSSI. Diagram shows divisions of the top level site into various count sectors discussed in this report. Greyed out sector are those with insufficient count coverage to allow analysis for any species.

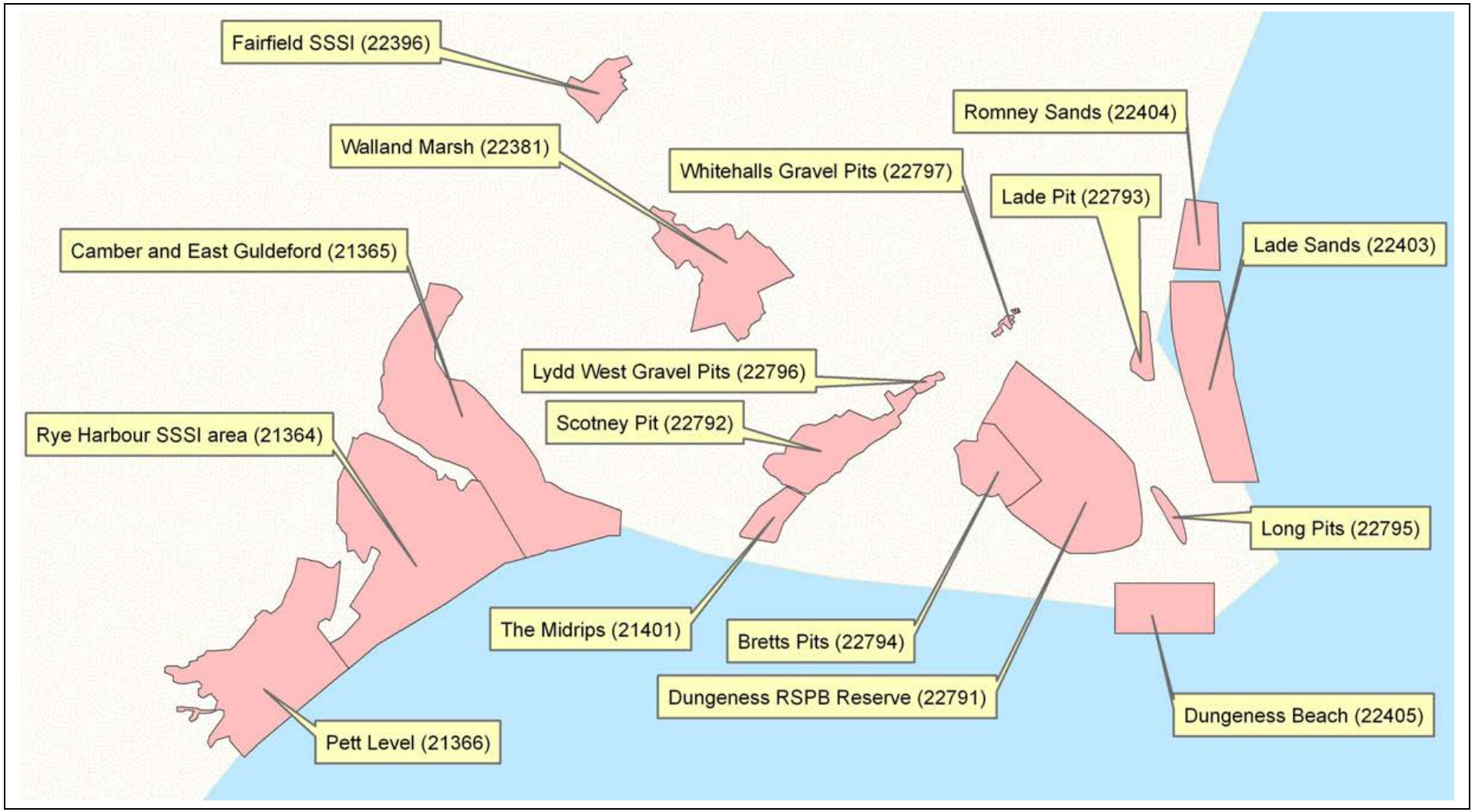


Figure 2.2.iii: WeBS count sections relevant to the Dungeness, Romney Marsh and Rye Bay SSSI. The lowest level count sections within the hierarchy are those shown. The extent of intermediate count sectors can be deduced by combining sections as indicated in the site hierarchy (Figure 2.1.ii).

2.3 Smoothed Waterbird Trends and Percentage Change

The methodology used to produce smoothed site, regional and national trends as reported by WeBS Alerts (Maclean and Austin 2008) can be usefully extended to generate trends on smaller areas of interest such as WeBS count sectors or appropriately grouped count sectors. It is, however, important to recognise that the numbers of birds underlying the observed trend on sectors are generally much lower than those underlying site trends reported by WeBS Alerts, which, by definition, are at least equal to the national qualifying threshold. Consequently, individual trends should not be 'over-interpreted'. For example, a 50% decline from 30 birds to 15 birds would give much less cause for concern than a 50% decline from 1000 to 500 birds the latter being much more likely to reflect a real and substantial loss of birds from an area than the former. While bearing this in mind, a consistent pattern of decline across multiple species, even when the numbers involved for some of them are comparatively low, is strongly indicative of adverse factors affecting the sector in question and the particular suite of species showing a decline in numbers can guide us in where to look for problems (e.g. does the suite of species represent those known to be particularly sensitive to disturbance or those with similar ecological requirements).

Thus, using the latest available validated WeBS data (to winter 2007/08 inclusive), following Atkinson *et al*. (2000, 2006), smoothed indices (trends) were calculated using Generalized Additive Models (GAMs) for the relevant species. The smoothing is to ensure that year-specific factors, such as poor conditions on the breeding grounds or particularly harsh weather on the wintering grounds, that are not related to changes in the quality of the SSSI itself, do not contribute overly to the trend. Percentage change has been calculated for short- (5yr) medium- (10yr) and long-term (15yr). WeBS does not have the necessary data collated at the sector level to support analysis of longer time-series. By way of analogy with the WeBS Alerts system, declines of at least 25% a but below 50% are flagged as medium-declines, and declines of 50% or greater are flagged as high-declines (***we specifically do not use the terms medium- and high-Alerts because unlike the percentage change reported by WeBS Alerts, medium and high declines reported at the sector level do not constitute a formal WeBS Alert)***. The corresponding percentage change required to return the numbers to their former level following a decline or increase are likewise termed medium- (at least 33% but below 100%) and high- (100% or greater) increases.

2.4 Placing the Smoothed Waterbird Indices Into Context

Once the smoothed sector indices have been produced the observed trends are placed in context of the site trends. The current WeBS methodology (Banks & Austin 2004) as used to compare site trends with regional and national trends (Maclean and Austin 2008) is extended here to compare count sector trends with site trends. If waterbird numbers of a given species on a given count sector follow those of the species across the site as a whole then the proportion contribution of numbers on the site would remain constant. Any significant deviation from this gradient of zero would indicate that the waterbird populations on the relevant count sector are doing either better or less well than would be expected from the site trend. Consequently:

- where a decline on a sector reflects a decline across the site as a whole it is unlikely that the observed site trends is being driven by factors affecting that sector. If this is true of the majority of sectors, then this may indicate that the observed site decline in the species in question is due to factors external to the site and are thus not due to site management issues *per se*;

- where a decline on a sector is more substantial than that across the site as a whole, this may suggest that factors affecting that sector could be contributing to the overall decline;

- where a decline on a sector is less than the decline across the site as a whole, this suggests that relatively favourable conditions on that sector are helping buffer site declines;

- where an increase on a sector is less than that across the site as a whole, this suggests that the sector is already at carrying capacity for the species in question or, if historically it supported greater numbers, that the quality of the sector to that species has diminished;

- where an increase on a sector is greater than that across the whole site, this suggests that trends on that sector are driving the increase across the site or that the sector in question is relatively attractive compared to the site as a whole when increased numbers arrive at the site due to external factors.

The comparisons between sectors and site are derived from a logistic regression model with a binomial error term. The resulting plots depict the percentage contribution of the sector to the site as a whole and the associated confidence limits represent both variation in this proportion between months in a given year and the underlying sample size (e.g. we would be more confident of our estimate that a sector contributed 10% of the site total if 100 birds out of 1000 on the site were counted there than we would be if this was 10 out of 100). This is based on the winter period as routinely used for all WeBS reporting (Nov-Mar for waders and Sep-Mar for other species). Only data from months where counts consolidated across the site as a whole had been assessed as complete were available were used - following standard WeBS protocol described above.

Having considered the trends on the sectors, each in the context of trends across the site as a whole, it is worth considering the site trends in the context of the region – here the Environment Agency Southern Region (Figure 2.4.i), as this can modify our interpretation of the pattern of change across all sectors. This is especially important where there has been an increase or decline regionally. Consequently:

- where there has been an apparent re-distribution of a species within the SSSI (i.e. declines on some sectors appear to be balanced by increases on other sectors), but the proportional contribution of the SSSI to increasing regional numbers is declining, then this implies that those sectors on the SSSI with static or declining numbers are actually of concern because we would expect them to be increasing in parallel with the other sectors. Thus, in such cases, the apparent redistribution within the SSSI is misleading and the species in question may be facing problems on those sectors not supporting an increase in numbers;

- where a species is in regional decline we would expect declines on at least some of the sectors of the SSSI regardless of whether birds are being affected by adverse factors locally. Thus, we would expect those sectors of least suitable habitat to a given species to be the first to show a decline in numbers.

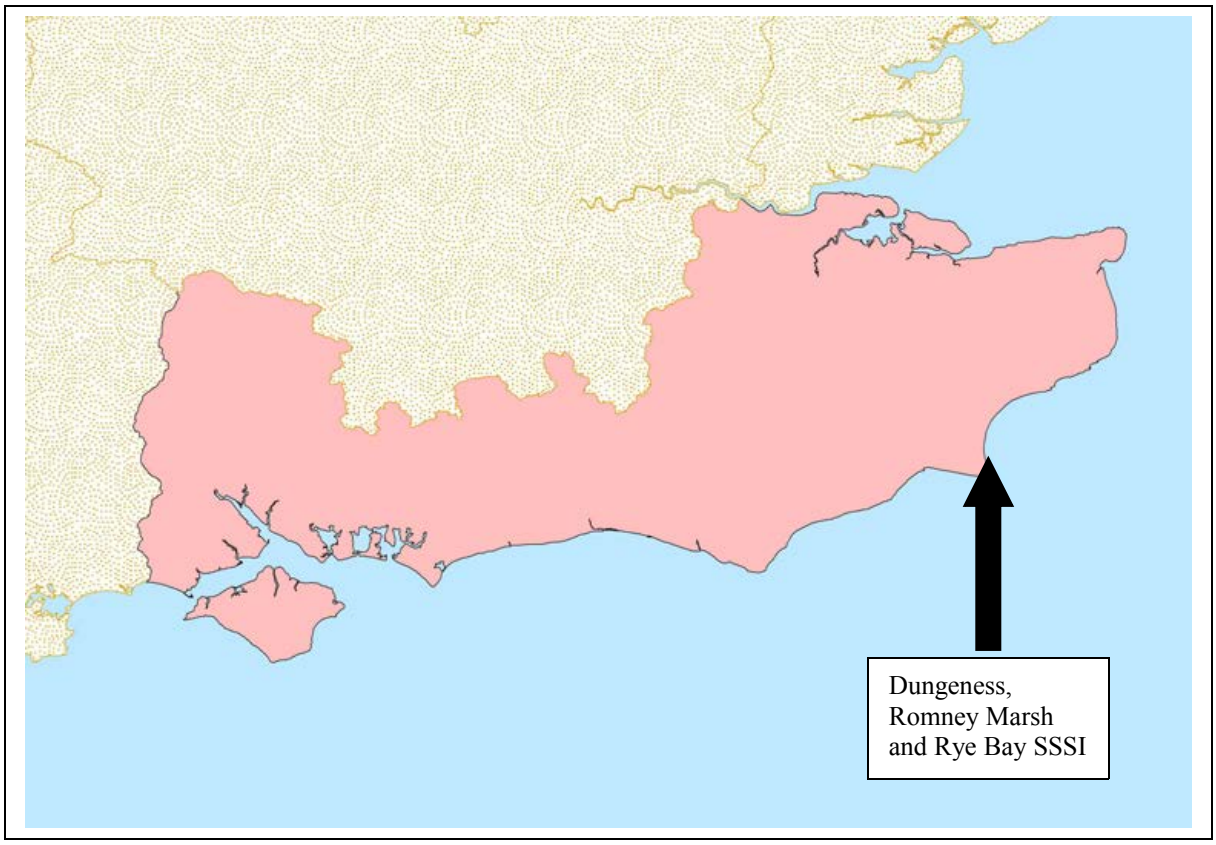


Figure 2.4.i: Extent of the Environment Agency Southern Region. Waterbird numbers recorded from WeBS monitoring sites from this region are those used throughout this report to provide the regional context to trends observed on the Dungeness, Romney Marsh and Rye Bay SSSI.

3. RESULTS

3.1 SSSI Trends

Plots of trends across the SSSI as a whole, regional trends and numbers on the SSSI relative to the region are presented in Appendix A. The region referred to in this report is the EA Southern England Region.

3.2 Sector Trends

Plots of the trends of each species on each sector together with those comparing annual (winter) mean counts on each sector with those for the SSSI as a whole are presented in Appendix B. Plots are grouped by sector and the species presented in taxonomic order. Figure numbering corresponds to the WeBS count sector codes. The information derived from these plots are given in Appendices C, D and E. i.e.

C: percentage change over the short- (5 yr), medium- (10 yr) and long- (15 yr) terms),

D: trend in site proportion on each sector and

E: five-year mean of peak counts for each of the periods 1993/94 to 1997/98, 1998/99 to 2002/03 and 2004/05 to 2007/08 together with the peak count during winter 2007/08.

These data are also available in the MS Excel workbook accompanying this report.

This information is summarised below (Tables 3.2.i, 3.2.ii & 3.2.iii respectively). Species are listed in taxonomic order and sectors have been arranged in geographical order as far as is practical. Colour coding is used to represent declines or increases and it should be noted that because the aim of this report is to identify areas where there may be cause for concern the colour coding is weighted towards the least positive change. For example, a sector for which a medium- and long-term increase but a short term decrease in numbers of a given species has been recorded will be coloured to emphasise the short-term decrease. Caution is advisable when interpreting individual cells in these tables as, for example, a 50% decline (shown in red) could represent a decline from 10,000 to 5,000 birds or could be a decline from 20 to 10, and therefore the plots in the appendix should also be referred to. However, consistency between adjacent cells would suggest that either a group of species or a group of adjacent sectors have similar trends. Where this is the case, this may suggest that the trends represent real ecological changes.

This information is also presented in map format, which further emphasises any spatial patterns that may be present in the trends. These are presented for both the finest level of the WeBS site structure hierarchy (Figures 3.2.i) and for the intermediate levels (Figure 3.2.ii).

	Swans and Geese				Dabbling Ducks						Diving Ducks			'Others'					Waders		
	Mute Swan	Bewick's Swan	European White-fronted Goose	Greylag Goose	Wigeon	Gadwall	Teal	Mallard	Pintail	Shoveler	Pochard	Tufted Duck	Goldeneye	Little Grebe	Great Crested Grebe	Cormorant	Moorhen	Coot	Golden Plover	Lapwing	Sanderling
Dungeness, Romney Marsh and Rye Bay SSSI	ooZ		soZ	xyZ	ooZ	xYZ	soZ	ooo	xYZ	ooZ	ooo	ooo	ooo	oYZ	sYZ	xyZ	oyZ	oyZ	xYZ	ooZ	oMZ
Rye Bay	Xmz			xYZ	ooZ	xyZ	oml	xyz	oMl	oyZ	ooo	oyz	soZ	soz	oYZ	xyZ	xyZ	oyZ	oyz	ooZ	XyZ
Rye Harbour	oMl			oYZ	oyZ	ooZ	xoo	xyo	xoo	oyz	ool	oyz	soZ	ooZ	xYZ	xyZ	ooZ	ooz	XYZ	ooo	xyZ
Rye Harbour - SSSI area	oMo			oYZ	oyZ	oyZ	omL	ooo	xYZ	omZ	oyzl	oyz	ool	soZ	xYZ	xyZ	oyZ	ooz		ooZ	xYZ
Camber and East Guldeford	SMl			xYZ			Xml	XYZ		oML	SML	ool		ooZ	xyZ	XoZ	ooZ	oYZ	XoZ	ooZ	XMZ
Pett Level	XoZ				xYZ	XYZ	oyZ	ooo		xYZ		xYZ			sYZ	Xoz	xYZ	oYZ	sYZ	ooz	
Pett Level excluding Pannel Valley	ooZ				ooZ	xyZ	soZ	ool		oyZ		ooo			sYZ	oYZ	oyZ	ooZ	oyZ	ooZ	
Pannel Valley	ooZ			xYZ	xyZ	oYZ	syZ	ooo	xYZ	oyZ							oyZ	oyZ	xYZ	ooZ	
Walland Marsh	oyZ		sYZ	XYZ	xmZ	soZ	Soz	soo	xYZ	SMo	omL	oml		oyZ	XYZ	xyZ	SML	SMo	XYZ	ooZ	
Fairfield SSSI	smZ				ooZ	SoZ	soZ	xyZ		SyZ								xyZ	SMZ	ooZ	
Lade Sands															SYZ						oMZ
Dungeness Gravel Pits	omZ	SMo	SMZ	ooZ	ooZ	xYZ	ooZ	omo	xYZ	oyz	ooo	ooo	ooo	xYZ	xyz	oyZ	oyZ	oyZ	sMZ	omZ	
Dungeness RSPB Reserve	xoZ	SMo	SML	Xoz	ooz	xYZ	ooZ	sMl	xYZ	oyzl	ool	ool	oml		xyo	oYZ		oyZ	SMl	ooZ	
Lade Pit	oML			XYz	XYZ	XYz	XYz	omo		XYZ	smz	smo	xmz	XYZ	oYZ			sol			
Bretts Pits	oML							soo			xol	SML						SyZ	SmZ	SMz	
Whitehalls Gravel Pits	syZ				ooZ		xoZ	sol			omo	ooo						oyZ	XmZ	omZ	
Long Pits												soo						sml			
Scotney and Lydd West	oyZ		SMZ	soZ	xoZ		XYZ	syo		xYZ	Smo	soZ		oYZ	soZ	ooZ		oyZ	xoZ	xmZ	
Scotney Pit	xYZ		soZ	xYZ	omZ		XYZ	omo		oYZ	ooZ	oyZ		oYZ	XYZ	ooZ		oyZ	sMZ	oMz	
Lydd West Gravel Pits	XyZ			XYZ	omZ			ool		XYZ	xYz	xYz		oYZ				xYZ		ooZ	

Table 3.2.i Overview of trends of each species on Dungeness, Romney Marsh and Rye Bay SSSI by WeBS count sector assessed over three timescales: short- (5-year), medium- (10-year) and long-term (15-year). For complete details of underlying values refer to Appendix C. For each sector, declines are given precedence over increases as the former are of primary concern. Cells are coloured to indicate trend status as follows: Red - a maximum decline in numbers of at least 50% over at least one timescale; Orange - a maximum decline in numbers of at least 25% but less than 50% over at least one timescale; Light green – a maximum increased of at least 33% but less than 100% over at least one timescale; Dark green - a maximum increase of at least 100% on at least one timescale; White - a maximum decline less than 25% or maximum increase less than 33% on all three timescales. Grey - insufficient data for or too few individuals (arbitrarily taken as an average of ten or less) of, a given species to allow meaningful smoothed trends to be generated. Decreases over short-, medium- and long-terms are indicated by S/s, M/m and L/l respectively while increases are indicated by X/x (short), Y/y (medium) and Z/z (long). Upper case indicates high declines / increases and lower case , lower case medium declines / increases. 'No' change (i.e. between -25% and +33%) is indicated by 'o' for all time-frames.

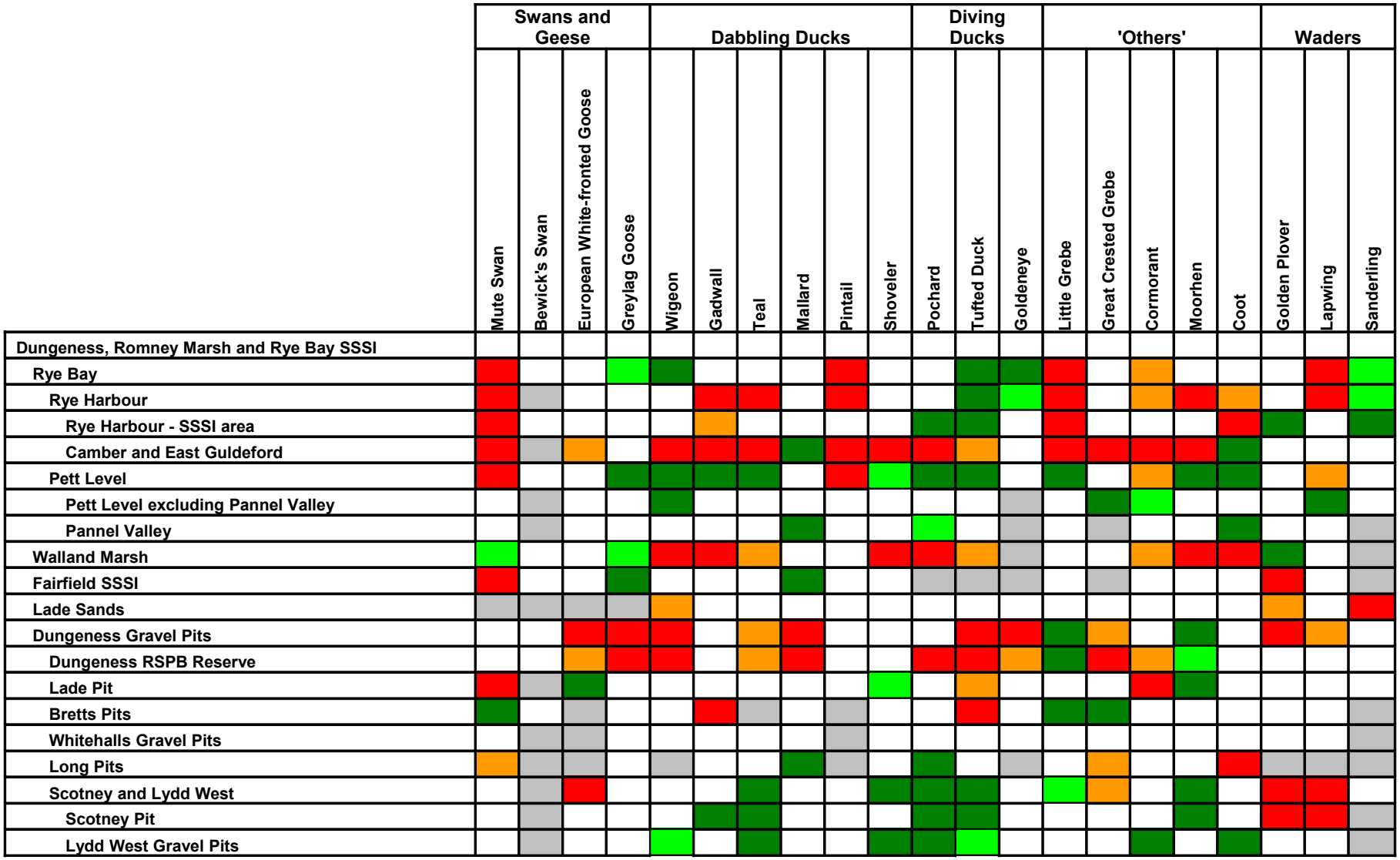


Table 3.2.ii: Changes in the proportion of the total site population of each species supported by each WeBS count sector, assessed over the most recent 15-year period. Cells are coloured to indicate a sector's proportional contribution to numbers on Dungeness, Romney Marsh and Rye Bay SSSI as a whole, as follows: Red - a highly significant decline ($P < 0.01$); Orange - a significant decline ($P < 0.05$); Light green – a significant increase ($P < 0.05$); Dark green - a highly significant increase ($P < 0.01$); White – no significant trend over the period. Grey - insufficient data for or too few individuals (arbitrarily taken as an average of ten or less) of, a given species to allow a meaningful Logit model to be fitted. Underlying values are available from Appendix D.

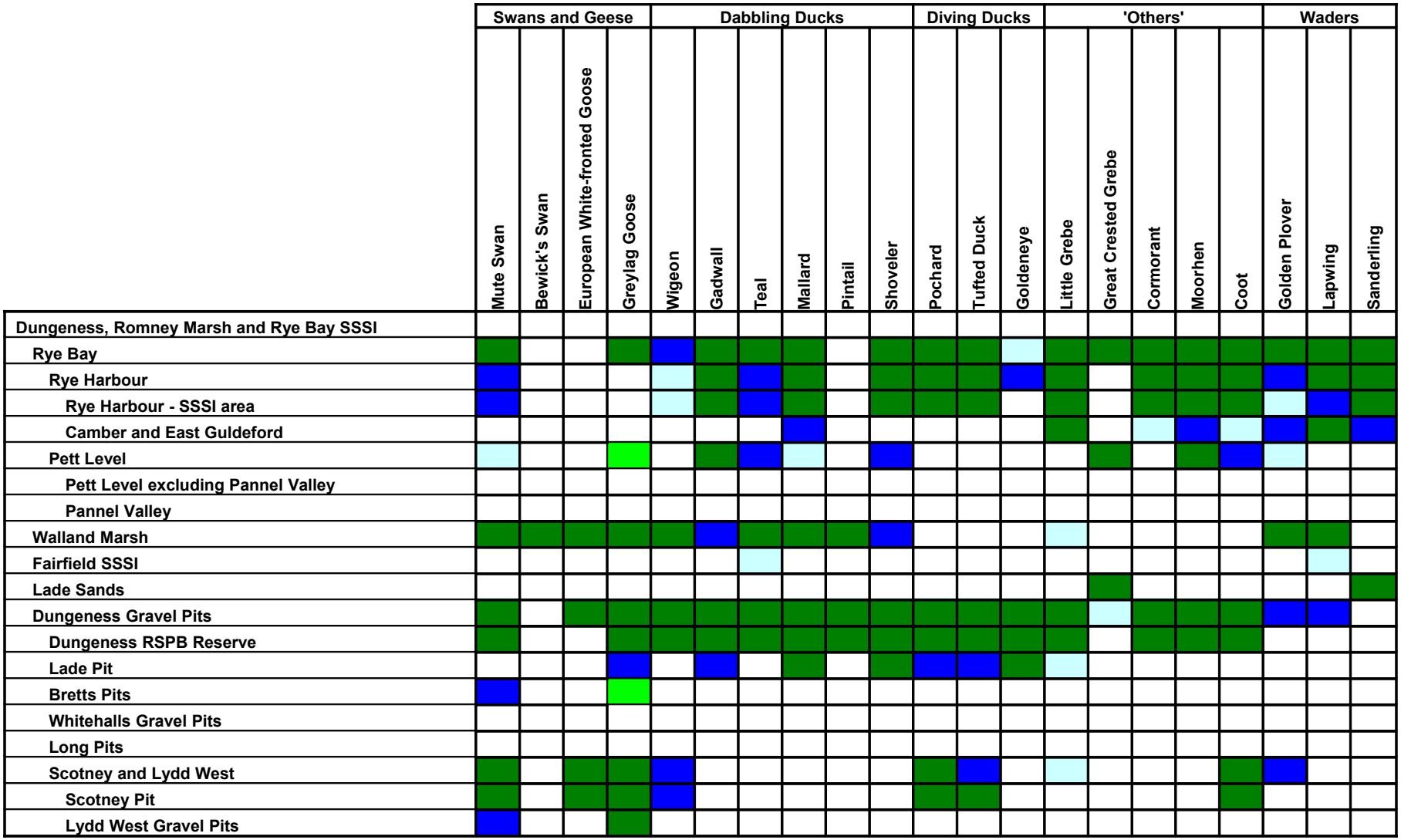


Table 3.2.iii: Importance of WeBS count sectors on Dungeness, Romney Marsh and Rye Bay SSSI by species. Cells are colour coded to indicate sectors that hold a substantial proportion of the SSSI total for the species arbitrarily defined and in order of priority as follows: Dark Green – sectors with a mean of peak counts over the last five winters that is at least 20% of the total mean of peak counts for the site over the same period; Dark Blue – Sites with a mean of peak count over the last five winters that is between 10% and 20% of the total mean of peak count for the site over the same period; Light Green – Sites with a peak count in the latest year that is at least 20% of the total peak count for the estuary in the latest year; Light Blue – Sites with a peak count in the latest year that is between 10% and 20% of the total peak count for the site in the latest year. Underlying values are available from Appendix E together with five year mean of peaks for each of the previous five year periods.

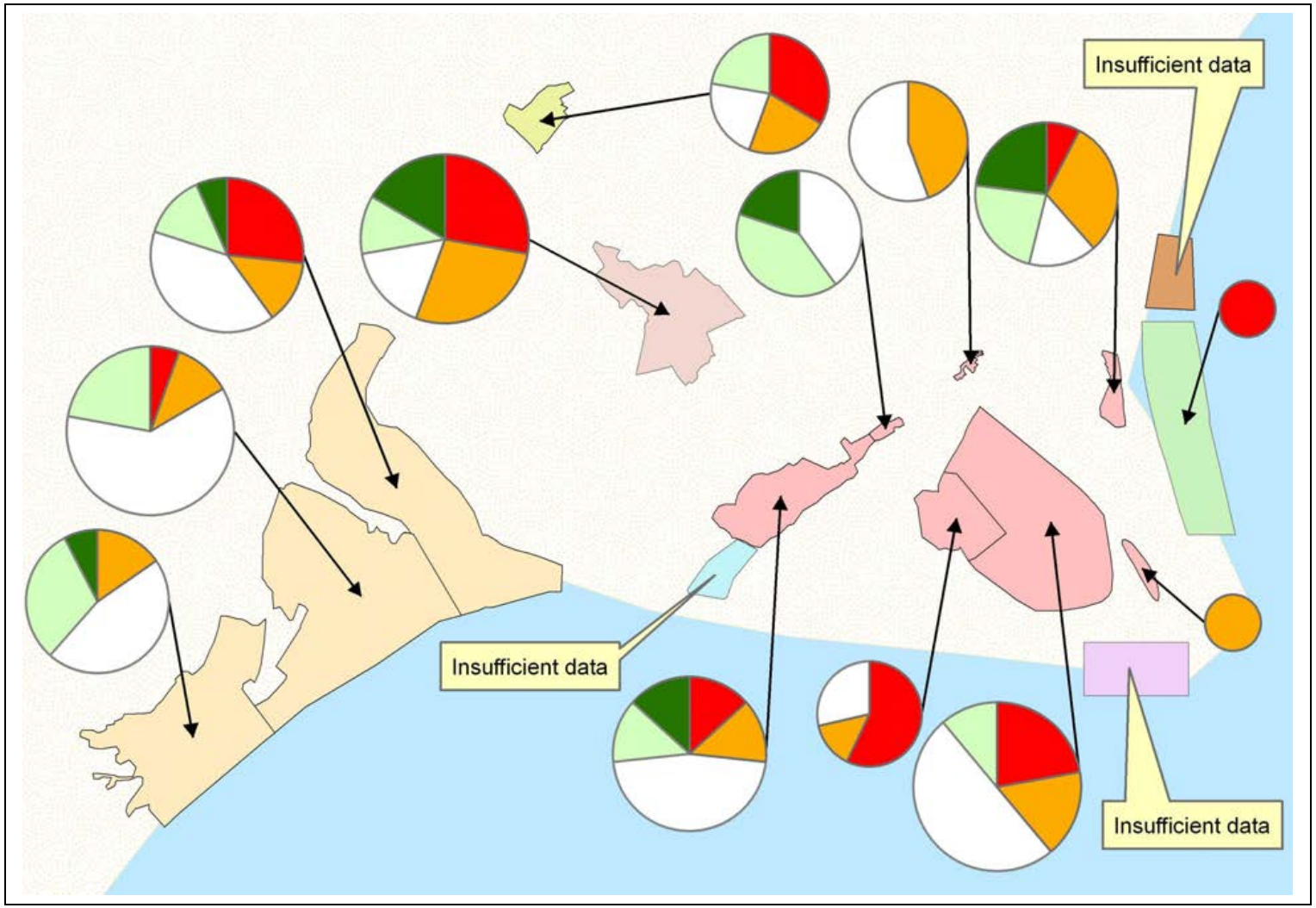


Figure 3.2.i: Spatial overview of changes on individual WeBS count sectors on Dungeness, Romney Marsh and Rye Bay SSSI. The size of each pie chart is proportional to the number of species for which there is sufficient data to generate trends, and within each pie chart the proportion of species whose populations have shown high declines (>50%, red), medium declines (25% to 50%, orange), no medium or high change (-25% to +33%, white), medium increase (33% to 100%, light green) or high increase (>100%, dark green). For the equivalent representation for the intermediate count sectors in the site hierarchy see Figure 3.2.ii.

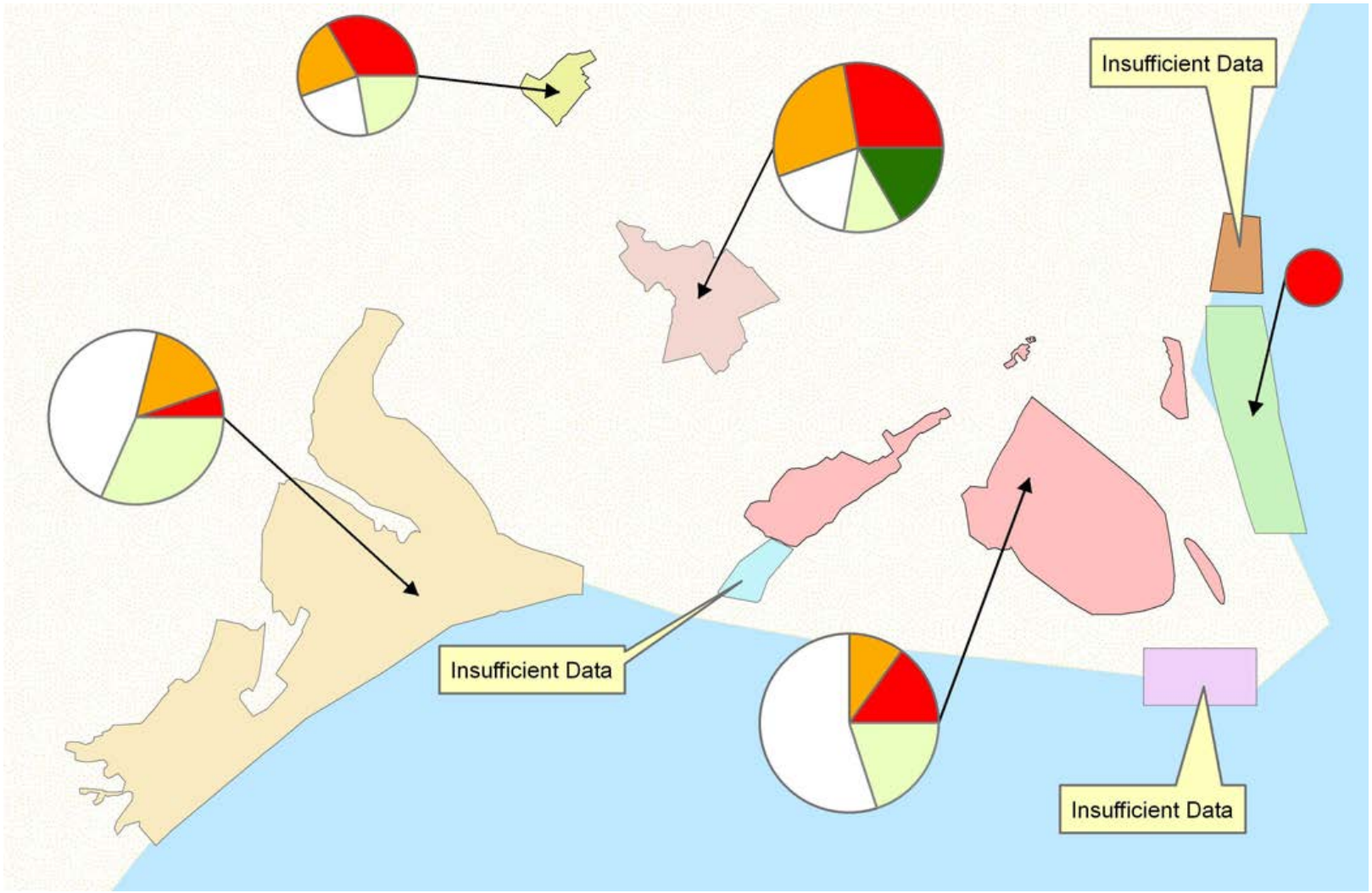


Figure 3.2.ii: Spatial overview of changes on composite WeBS count sectors, intermediate in the WeBS site hierarchy on Dungeness, Romney Marsh and Rye Bay SSSI. The size of each pie chart is proportional to the number of species for which there is sufficient data to generate trends, and within each pie chart the proportion of species whose populations have shown high declines (>50%, red), medium declines (25% to 50%, orange), no medium or high change (-25% to +33%, white), medium increase (33% to 100%, light green) or high increase (>100%, dark green). For the equivalent representation for lowest level count sectors in the site hierarchy see Figure 3.2.i.

4. DISCUSSION AND CONCLUSIONS

4.1 Species Trends

Throughout these accounts, comments regarding short-, medium- and long-terms are made with reference to Table 3.2.i which provide 'snap-shots' of change over particular time-frames. Most interpretation is, however, based on the trend plots and plots of numbers recorded on sectors relative to those for the overall SSSI (Appendix A).

4.1.1 Mute Swan *Cygnus olor*

Across the whole SSSI, the numbers of Mute Swan recorded by WeBS counts have increased steadily with a particularly steep increase from 2006/07 to 2007/08 such that the numbers counted were approximately four-times those counted in the early 1990s. Regionally, numbers have dipped in recent years following a steady increase throughout the 1990s. The most recent winter aside, the SSSI has consistently hosted between 10% and 20% of the regional WeBS total indicating that trends across the SSSI as a whole largely reflect wider-scale patterns. There is, however, evidence of redistribution of this species within the SSSI. The main areas of concern are at Rye Harbour and at Lade Pit where numbers of this species show a steep decline. Away from these areas, numbers of Mute Swan have been at least stable with those on Scotney and Lydd West Gravel Pits showing a slight increase. Given the long-term increase on the site, this suggests the birds may be responding to pressures on Rye Harbour and Lade Pit.

4.1.2 Bewick's Swan *Cygnus columbianus*

The SSSI supports only low numbers of this species, and only at Dungeness RSPB Reserve were there sufficient data to generate trends for an individual sector. Here, numbers of Bewick's Swans have shown a high decline in both the short- and medium-terms. Although this follows the regional trend it must be born in mind that this site holds a high proportion of the regional total of this species and so it is difficult to disentangle whether the site is following a more widespread pattern or indeed whether declines here are driving that observed regionally. However, a similar decline can also be seen at the national level (Holt *et al*. 2009) suggesting this decline is part of a broad-scale trend.

4.1.3 European White-fronted Goose *Anser albifrons albifrons*

Overall numbers of European White-fronted Goose on the SSSI have increased during the past 15 years, although they show signs of decrease since the peak during the winter of 2001/02. Within the SSSI, only three individual sections host this species in sufficient numbers to allow trends to be generated. Numbers have declined on all three of these sectors, those on both Dungeness RSPB Reserve and Scotney & Lydd West showing high declines, while those on Walland Marsh have shown a slight decline in the short-term. However, regional numbers of this species have shown a dramatic decline since the mid 1990s, although this decline has levelled off since 1999/00, and this regional decline, itself in line with the national trend (Holt *et al* 2009), is largely due to the phenomenon of "short-stopping, whereby an increasing proportion of this species now over-winter in mainland Europe rather than continuing their migration into Britain. Consequently, declines of White-fronted Goose would be expected across the site and are unlikely to be due to any local pressures.

4.1.4 Greylag Goose *Anser anser*

Greylag Goose numbers across the SSSI have increased by nearly six-times within the past 15 years and this increase is in line with those observed at the regional, and indeed national (Holt *et al* 2009), levels. There may have been a slight redistribution within the site with a slight decrease in numbers at Scotney and Lydd West though the mobile nature of this species may account for this apparent decline. Walland Marsh and Lydd West Gravel Pits both showed high increases and four other sectors

showing slight increases. Again, the pattern of change across the SSSI is largely reflecting wider scale changes.

4.1.5 Wigeon *Anas penelope*

Following a sharp increase in the mid 1990s, Wigeon numbers on the SSSI were relatively stable. There is some evidence of a redistribution within the SSSI with a slight decline in numbers over the medium-term on Walland Marsh and Scotney Pit, these declines being balanced by numbers on Lade Pit that have increased strongly. Numbers regionally have shown little change in the past decade following a similar sharp increase in the mid 1990s. This implies that overall the SSSI is in a favourable state for Wigeon, and that if birds are indeed reacting to any adverse pressure on Walland Marsh and Scotney Pit then there is capacity across the remainder of the site sufficient to absorb displaced birds.

4.1.6 Gadwall *Anas strepera*

The SSSI supports nationally important numbers of this species, with numbers increasing steadily in the past 15 years, exceeding the increase seen regionally. Only on Fairfield and, to a lesser extent, nearby Walland Marsh have numbers shown short-term declines. Numbers at Pett Level have shown the greatest increase with less substantial increases being apparent on Rye Bay and Dungeness Gravel Pits. The situation is therefore similar to that described for the previous species in that if local pressures are displacing the species from some parts of the SSSI, here Fairfield and Walland Marsh, then there is sufficient capacity on other areas within the SSSI to accommodate displaced birds.

4.1.7 Teal *Anas crecca*

The number of Teal on the SSSI as a whole has increased in the long-term although in the short term they have shown a slight decline from their peak in winter 2001/02. Numbers on the Dungeness Gravel Pits consolidation have increased, mostly notably at Scotney and Lydd West. Numbers recorded on several sectors have shown declines, most notably at Walland Marsh with less severe declines on Pett Level and Fairfield. Although Teal numbers remain higher across the SSSI than they were during the early 1990s and have remained relatively stable since the sharp drop in the early 2000s this recent decline contrasts the stable regional trend during this period. The declines on Walland Marsh, Pett Level and Fairfield appear to have driven this decline suggesting that Teal may be reacting adversely to pressures on these sectors.

4.1.8 Mallard *Anas platyrhynchos*

Across the whole SSSI there has been no notable change in numbers of Mallard and this contrasts with the regional trend, and indeed national trend (Holt *et al* 2009), for this species which has shown a steady decline over the past 15 years. Consequently, the SSSI would appear to be a particularly favourable state for this species. There is some evidence of some redistribution within the SSSI, numbers on Rye Bay as a whole showing a slight increase while numbers on Dungeness RSPB Reserve have shown a high decrease.

4.1.9 Pintail *Anas acuta*

Pintail numbers on the SSSI have increased steadily over the last fifteen years, although they have fluctuated over the most recent years. This increase contrasts with a stable regional trend indicating the SSSI has become increasingly important to this species in a regional context. Within the SSSI, the most significant decline has occurred on Rye Bay where only low numbers of this species are to be found, with slight increases recorded at the four individual sections where there are sufficient data to generate trends. Consequently, the SSSI can be considered to be in a favourable state for this species with no within site trends giving cause for concern.

4.1.10 **Shoveler** *Anas clypeata*

Shoveler numbers on the SSSI increased during the late 1990s and have now stabilised at a slightly higher level than during the early 1990s and the overall trend has been favourable compared to that across the region. There is, however, some indication of a redistribution of this species across the site and numbers on Walland Marsh, Fairfield and the Camber and East Guldeford sectors have shown sharp declines. In contrast, numbers on the Dungeness Gravel Pits consolidation have increased, most markedly so at Lade Pit and Lydd West Gravel Pits. Such redistribution could be due either to local pressures on the former sites or increasing attractiveness of the latter. The favourable trend of the SSSI relative to the region suggests that it may be latter.

4.1.11 **Pochard** *Aythya ferina*

Across the whole SSSI, Pochard numbers have fluctuated widely; though overall have not changed significantly, whilst the regional trend has seen a steady decline. Consequently, this site has become increasingly important for this species in a regional context. Numbers at Rye Harbour, Walland Marsh and the Dungeness Gravel Pits complex have all shown declines, the only sector to show an increase was Lydd West Gravel Pits. Given that these declines are lagging behind those across the region, and indeed nationally (Holt *et al*. 2009) it is unlikely that there are any within-site pressures on this species that give cause for concern. However, it could be argued that, given the increasing importance of the site regionally, those sectors that still retain high numbers of this species are increasing in there conservation importance.

4.1.12 **Tufted Duck** *Aythya fuligula*

Tufted Duck numbers have shown little change on the SSSI during the past 15 years, whilst regionally numbers have fallen slightly. Thus the SSSI now hosts about 40% of the regional WeBS total as compared to about 25% back in the early 1990s. As with Pochard, numbers of Tufted Duck at Rye Harbour, Walland Marsh and the Dungeness Gravel Pits complex have all shown declines, only Pett Level and Lydd West Gravel Pits showed an increase. Consequently, a similar argument could be made for the increasing conservation importance of those sectors holding higher numbers of this species.

4.1.13 **Goldeneye** *Bucephala clangula*

Only low numbers of Goldeneye are found on the SSSI and their numbers fluctuate between years, while the proportion of the regional population found on the SSSI has remained relatively constant long-term. However, in the short term there is an indication that the SSSI has become more important in a regional context having risen above 20% of the regional WeBS total. Although there have been short-term declines during the latest five years on Rye Bay and a medium-term decline at Dungeness Gravel Pits this appears to be within the normal fluctuation in numbers for these sectors. Because the numbers of this species occurring on the site is so low, with a winter average generally below 20 individuals, firm conclusions about the favourability of particular sectors cannot be drawn.

4.1.14 **Little Grebe** *Tachybaptus ruficollis*

Little Grebe numbers on the SSSI have increased steadily over the last fifteen years, although the most recent winters have seen a slight fall. The regional trend has remained relatively stable during this recent period, although increasing itself in the long-term. The importance of the site in a regional context has increased long-term. Within the SSSI, numbers on Rye Bay have shown a short-term decline of Little Grebes whilst those on Dungeness Gravel Pits have increased, most significantly at Lade Pit. The importance of Rye Bay to this species has decreased steadily through time due to other areas being colonised in preference. Consequently, when numbers across the site fall for whatever reason one would expect that Rye Bay be the first part of the SSSI to loose numbers and so, the decline observed there is not necessarily due to pressure in that part of the SSSI.

4.1.15 Great Crested Grebe *Podiceps cristatus*

Overall numbers of Great Crested Grebes on the SSSI show a similar pattern to that observed for Little Grebe with an increased over the past 15 years, but with a short-term decline, whilst regionally, numbers have remained fairly stable. The most notable decline has been on Lade Sands though numbers counted offshore can be dependent on sea conditions and therefore the trends should be interpreted with caution. Consequently, the SSSI remains in a favourable state for this species and there is no evidence that the birds are responding to any within-site pressures.

4.1.16 Cormorant *Phalacrocorax carbo*

During the 15 years covered by this study Cormorant numbers have increased steadily on the SSSI as a whole, whilst regional numbers have remained relatively stable. The site has thus increased in importance in a regional context, hosting over 20% of the regional WeBS total compared to about 5% in the early 1990s. Numbers have remained stable at the Dungeness Gravel Pits complex whilst at Walland Marsh and Rye Bay; numbers have shown a long-term increase. Given the favourable status of the site for Cormorant there would appear to be little cause for concern that any within-site pressures are affecting this species. Although numbers have stabilised on Dungeness Gravel Pits in contrast to the SSSI as a whole it may simply be that this part of the SSSI is at capacity for this species.

4.1.17 Moorhen *Gallinula chloropus*

This cryptic behaviour of this species does not lend itself to robust monitoring using standard WeBS methodology and so any interpretation of trends or numbers of birds present carry with them a relatively high degree of uncertainty. That said, the numbers of Moorhen on the SSSI show an overall increase whilst the regional numbers have remained almost constant during the period of this study. The only sector showing a decline in numbers is Walland Marsh, although only small numbers (maximum of 15 birds) are present on this sector and therefore the trends should be interpreted with particular caution. The most marked increases in numbers over the long-term have been recorded within the Rye Bay complex. Given the caution with which numbers recorded for this species should be treated and the lack of any strong declines having been identified there is no evidence that this species is under any pressure within the SSSI.

4.1.18 Coot *Fulica atra*

The overall trend for Coot on the SSSI is favourable with a relatively stable trend in recent winters following a period of steady increase throughout the 1990s. During this period, regional numbers have remained relatively constant and hence the site has become increasingly important to this species in a regional context, now hosting about 40% of the regional WeBS total, up from 20% in the early 1990s. The increase in numbers on the SSSI has been driven by increases on Fairfield and Lydd West Gravel Pits, increases that have out-weighed significant declines on Walland Marsh and Bretts Pits. This suggests that, although overall the SSSI is in a favourable state for this species, there may be local pressures displacing this species from the latter areas.

4.1.19 Golden Plover *Pluvialis apricaria*

Golden Plover numbers have increased over the SSSI as a whole, but numbers have fluctuated substantially between winters making interpretation difficult. Numbers on Rye Bay, especially Rye Harbour have increased over the past 15 winters, whilst Fairfield and Dungeness Gravel Pits complex have seen highly significant rates of decline over the same period. Regionally, numbers have increased steadily over this period and coupled with the fact that the SSSI remains relatively important in a regional context, hosting up to 20% of the regional WeBS total since the winter of 2000/01 (down

from 40% during the late 1990s) sectors on which numbers have fallen may give cause for concern as increases, or at least stable numbers, would be expected across all sectors.

4.1.20 Lapwing *Vanellus vanellus*

The number of Lapwing on the SSSI as a whole has fluctuated markedly over the most recent 15 winters making interpretation difficult although numbers remain substantially high that were in the early 1990s. Interpretation is doubly difficult for this species because regional numbers had also fluctuated markedly during the 1990. That said, as with Golden Plover, Lapwings are declining on the Dungeness Gravel Pits complex, while on Rye Bay, numbers have remained stable or shown a long-term increase. Again, because there is no evidence of a regional decline and the relative importance of the site in a regional context, the site hosting about 20% of the regional WeBS total, sectors on which numbers have fallen may give cause for concern.

4.1.21 Sanderling *Calidris alba*

Following a peak in the late 1990s, the number of Sanderling on the SSSI has fallen, although in recent years has been fairly stable. Although the fluctuations in numbers of this species on the SSSI and even within the region make interpretation difficult, the relative importance of the site remains stable. This suggests that trends across the SSSI as a whole are being largely driven by wider-scale changes. Only five sectors have sufficient data to generate trends, however, there is evidence that this species may be redistributing within the site. Numbers on Lade Sands show a high decline whilst those on Rye Harbour have increased. This does suggest that this species may be redistributing due to adverse pressures on Lade Sands.

4.2 Within Site Patterns

Looking at the broad patterns across the site can reveal patterns that may be overlooked when considering each species in isolation. For example when considering numeric change on a species by species basis and dealing with relatively small numbers of individuals it can be difficult to distinguish between changes due to chance and changes that are being driven by real pressures. However, when similar patterns can be identified across several species this increases ones confidence that real changes are being observed. This is especially so when species share common ecological traits or requirements and, considering these aspects can help to narrow down the list of potential causes.

4.2.1 Swans and Geese

Both Bewick's Swan and European White-fronted Goose are both found in relatively small numbers on the SSSI and are very localised. Both species are only found in any number on Dungeness Gravel Pits where both have shown a high rate of decline in the medium-term, whilst numbers of European White Fronted Geese have also declined in the short term at Walland Marsh. However, there are good reasons to believe that both of these declines are being driven by broad-scale patterns. Mute Swan are much more widespread, and only two sections have insufficient data to generate trends. Whilst overall numbers have gone up across the SSSI, there have been localised declines, especially at Rye Bay. Greylag Geese however have seen a steady increase in numbers across the SSSI, which reflects the national picture driven by the expansion and increase of the re-established population (Baillie *et al* 2009). Consequently, it would appear that the SSSI remains favourable to these species and no within-site trends give cause for concern.

4.2.2 Dabbling Ducks

Across the SSSI, dabbling duck numbers have increased, particularly over the long-term; with most species' numbers being stable, and only Teal have shown a short-term decline. However, Wigeon, Gadwall, Teal, Mallard and Shoveler have all declined at Walland Marsh, whilst Gadwall, Teal and Shoveler have also all declined at Fairfield. Numbers of dabbling ducks in the Rye Bay complex have

increased for all species with the exception of Pintail, which has seen a high decline. The Dungeness Gravel Pits consolidation has also seen a general increase in numbers of dabbling ducks, with Pintail and Gadwall numbers in particular showing consistent increase, with Mallard the only species that has declined on this particular part of the SSSI.

Given the declines on Walland Marsh and Fairfield for all these species in contrast to otherwise stable or increasing numbers, this suggests that dabbling ducks as a group are being displaced from these areas by adverse pressure(s) although currently there appears to be sufficient capacity elsewhere on the SSSI to accommodate these birds. It would be prudent to investigate potential causes for these localised decline further, particularly if there is a possibility that they might have been driven by activities that may impact other parts of the SSSI in the future.

4.2.3 Diving Ducks

Although numbers of the three species of diving ducks, Pochard, Tufted Duck and Goldeneye, across the whole SSSI have shown no significant change over the past 15 years, numbers on many sectors have show declines. Numbers of all three diving ducks have declined on Dungeness RSPB Reserve and Lade Pit whilst Walland Marsh and Camber, East Guldeford, Bretts Pits and Scotney and Lydd West sectors have all seen declines for both Pochard and Tufted Ducks.

Unlike the situation for the dabbling ducks it is less clear whether these declines are being driven by local pressures because in all three cases numbers are falling regionally and so some loss of numbers would be expected and, indeed, overall the SSSI is becoming increasingly important in a regional context for all three. That these declines are being driven by regional or national patterns would be consistent with the observation that the declines are affecting many of the count sectors within the SSSI rather than just a few particular ones as is the case for the dabbling ducks. That is not to say that these declines should be dismissed and it could be argued that, given the increasing importance of the SSSI to these species in a regional context, any measures that could be taken to prevent further decline should be taken.

4.2.4 Waders

Only three species of waders have been assessed in this report, and whilst Sanderling are found primarily on sandy beach areas, while the 'grassland plovers' (Golden Plover and Lapwing) often favour drier habitats and marshes especially as safe areas to roost. The requirements of Sanderling therefore contrast with those of the other two species and should be considered in isolation. It is noteworthy that numbers both Golden Plover and Lapwings have fallen on the Dungeness Gravel Pits complex in contrast with an increase across the site as a whole suggesting that they may be responding to localised pressures on the gravel pits.

4.2.5 Remaining Species

Because the remaining species do not fall naturally into a coherent group it is difficult to draw conclusions about coincidence of trends.

4.3 Site Overview

Certain parts of the SSSI give particular cause for concern, especially Walland Marsh and Fairfield where numbers of most of the wildfowl species assessed have declined. There is also an indication that birds are under pressure on Lade Sands and Long Pits, although only three species are found on these latter two sectors in sufficient numbers to make an assessment of the trend. Numbers of the grassland plovers have declined on Dungeness Gravel Pits complex suggesting that land surrounding the waterbodies has become less attractive as roosts for these two species. The waterbodies themselves, however, remain in favourable condition as demonstrated by the increase in numbers for most of the dabbling ducks, grebes, coot and cormorant.

Areas of the SSSI where the number of birds has increased include Lydd West Gravel Pits and Pett Level where the majority of species with sufficient data to generate trends have either remained stable or increased.

References

Atkinson, P.W., Austin, G.E., Burton, N.H.K., Musgrove, A.J., Pollitt, M. & Rehfisch, M.M. (2000) *WeBS Alerts 1988/99: changes in numbers of waterbirds in the United Kingdom at national, country and Special Protection Area (SPA) scales*. BTO Research Report No. 239 to the WeBS Partnership. BTO, Thetford.

Atkinson, P.W., Austin, G.E., Baillie, S.R., Rehfisch, M.M., Baker, H., Cranswick, P., Kershaw, M., Robinson, J., Langston, R., Stroud, D.A., van Turnhout, C. & Maclean, I.M.D. (2006) Raising 'alerts' for changes in waterbird numbers: the effects of missing data, population variability and count period on the interpretation of long-term survey data in the UK. *Biological Conservation*, **130,** 549-559.

Baillie, S.R., Marchant, J.H., Leech, D.I., Joys, A.C., Noble, D.G., Barimore, C., Grantham, M.J., Risley, K. & Robinson, R.A. (2009). *Breeding Birds in the Wider Countryside: their conservation status 2008*. BTO Research Report No. 516. BTO Thetford (http://www.bto.org/birdtrends.htm).

Banks, A.N. & Austin, G.E. (2004) *Statistical comparisons of waterbird site trends with regional and national trends for incorporation within the WeBS Alerts System*. BTO Research Report 359, BTO, Thetford.

Holt, C., Austin, G., Calbrade, N., Mellan, H., Thewlis, R, Hall, C Stroud, D., Wotton, S., & Musgrove, A. (2009). *Waterbirds in the UK 2007/2008: The Wetland Bird Survey*. BTO/WWT/RSPB/JNCC Thetford.

Maclean, I.M.D. & Austin, G.E. (2008). *WeBS Alerts 2004/2005 (Release 2): Changes in numbers of wintering waterbirds in the United Kingdom, its Constituent Countries, Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs).* BTO Research Report No. 492 to the WeBS partnership. BTO, Thetford. Available: http://www.bto.org/webs/alerts/alerts/index.htm.

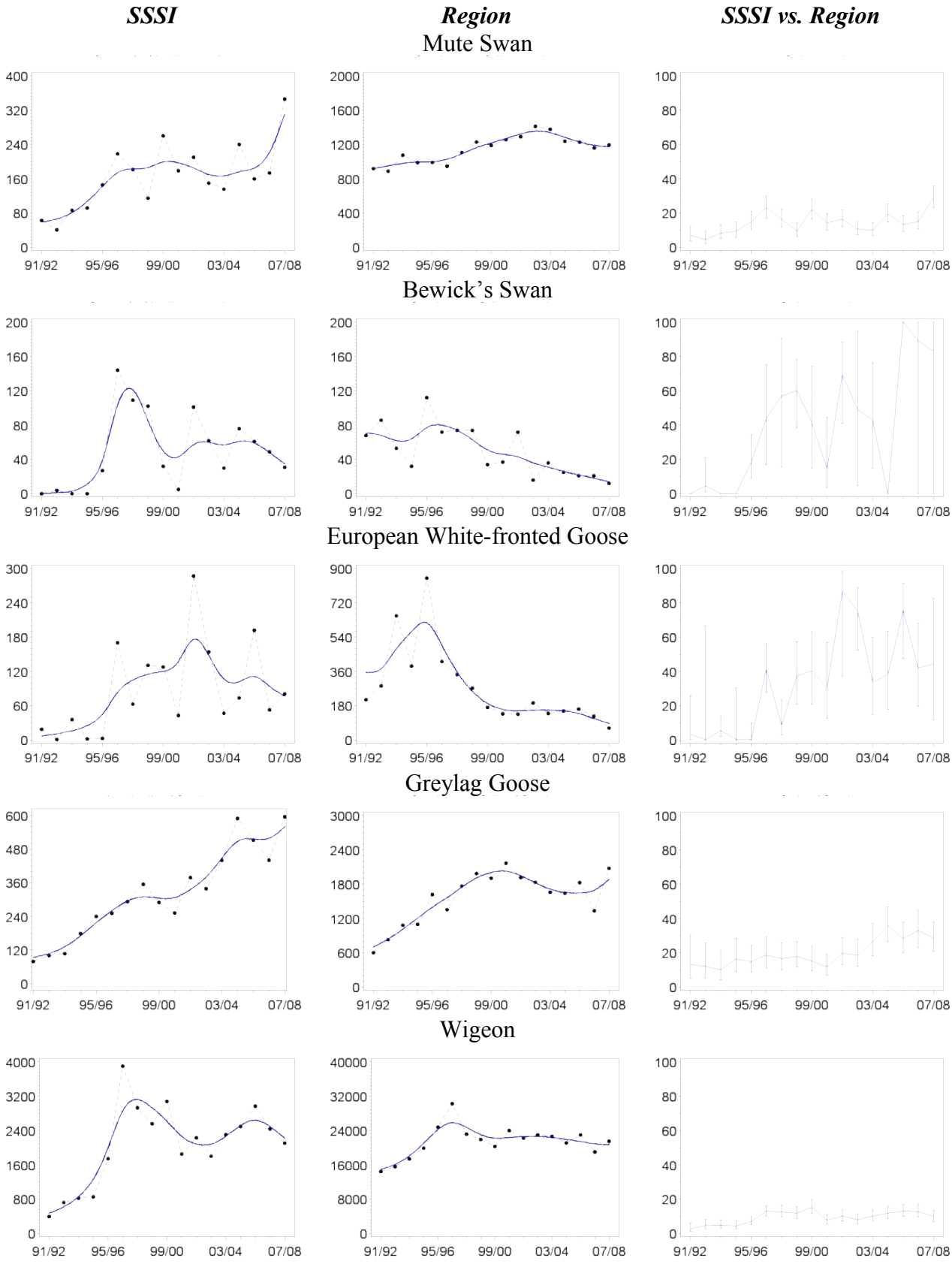
Appendix A

Plots depicting trends in numbers of waterbird species across the Dungeness, Romney Marsh and Rye Bay SSSI, the EA Southern Region and the proportional contribution of the SSSI to the region total.

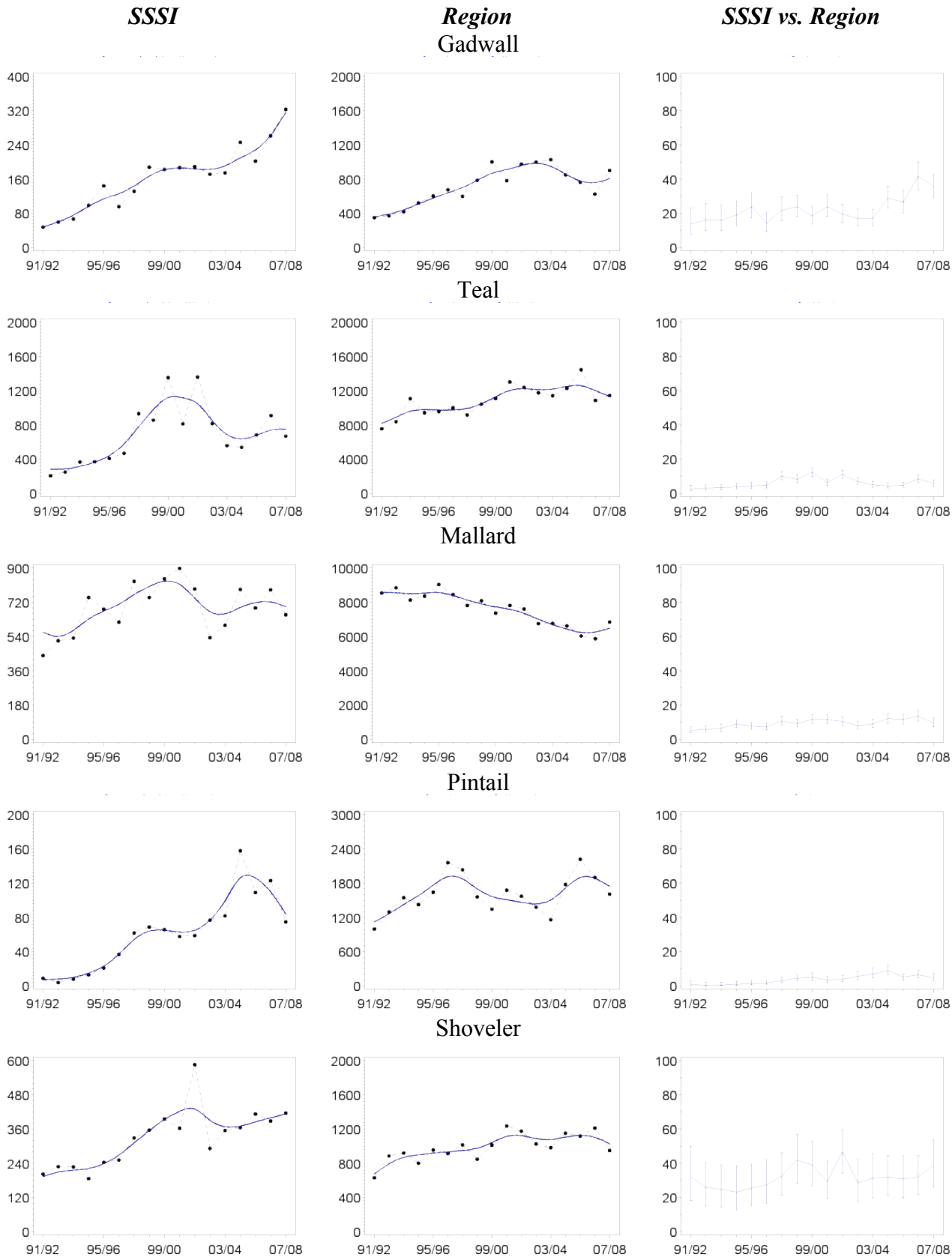
For each species, three graphs are presented: population trends of each on the SSSI (left-hand graphs), in the region (middle graph) and the proportion of birds in the region occurring on the SSSI (right-hand graph).

For the population trend graphs, plotted values represent the annual over-winter average and the smoothed trend is that derived by fitting the Generalized Additive Model through those values. It is on the smoothed trend that the percentage change over the three time frames has been calculated. This avoids calculated changes being overly influenced by anomalous values that do not relate to the underlying trend. Solid symbols indicate that counts are relatively complete, open symbols indicate that coverage was incomplete and numbers have been imputed.

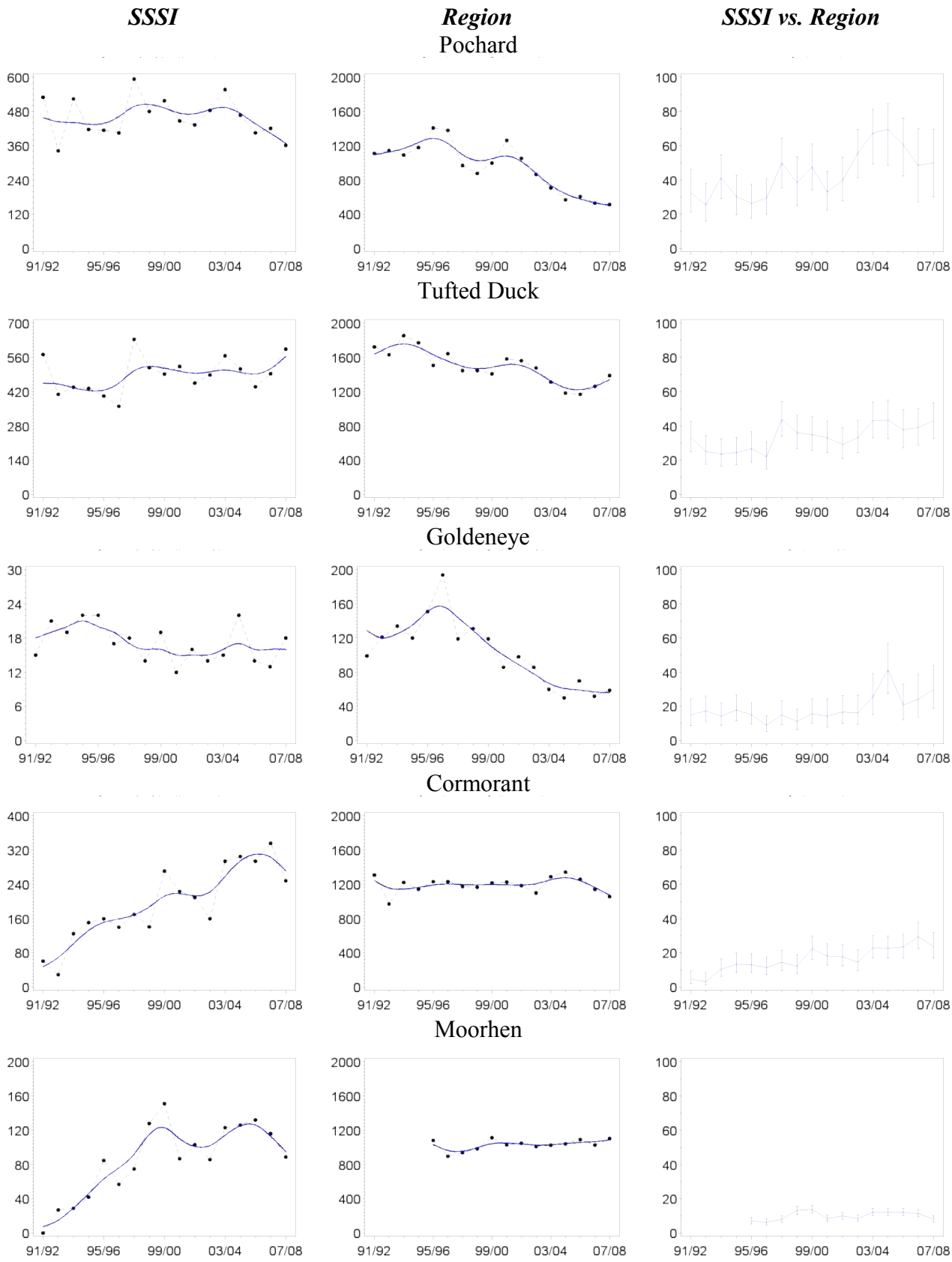
For the proportional contribution graphs, plotted values represent the proportion of the regional total occurring on the site modelled by month and winter. Confidence intervals for each winter therefore encompass both monthly variation and degree of confidence depending on number of individuals involved.



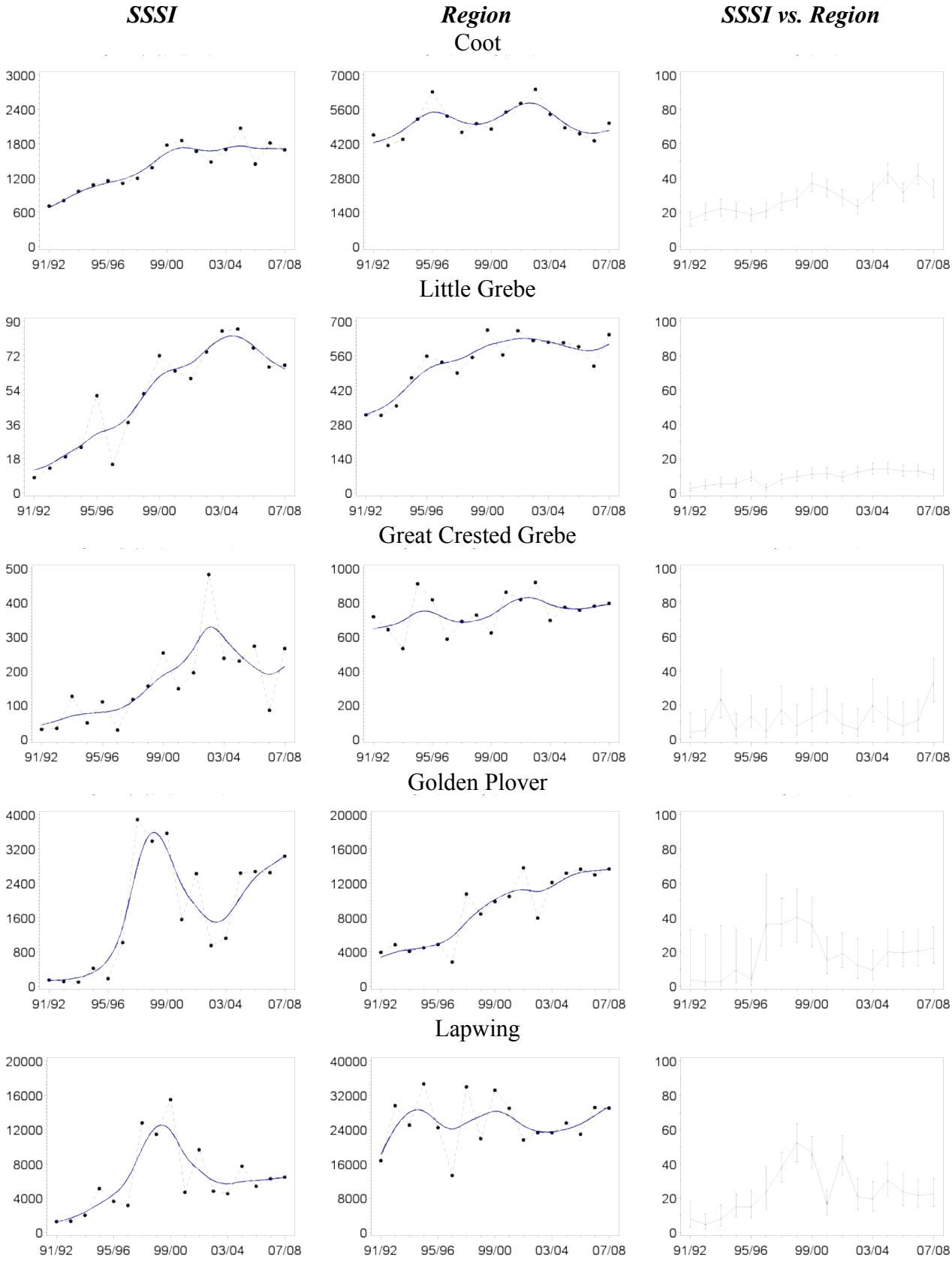
Appendix A: Population trends of each on the SSSI (left-hand graphs), in the region (middle graph) and the proportion of birds in the region occurring on the SSSI (right-hand graph).



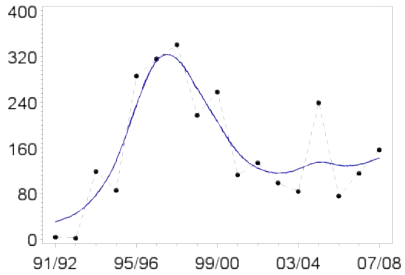
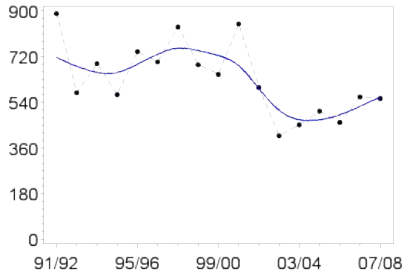
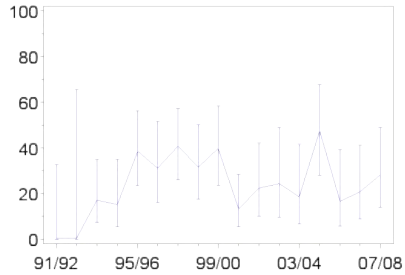
Appendix A: Continued



Appendix A: Continued



Appendix A: Continued

SSSI	*Region*	*SSSI vs. Region*
Sanderling		
		

Appendix A: Continued

Appendix B

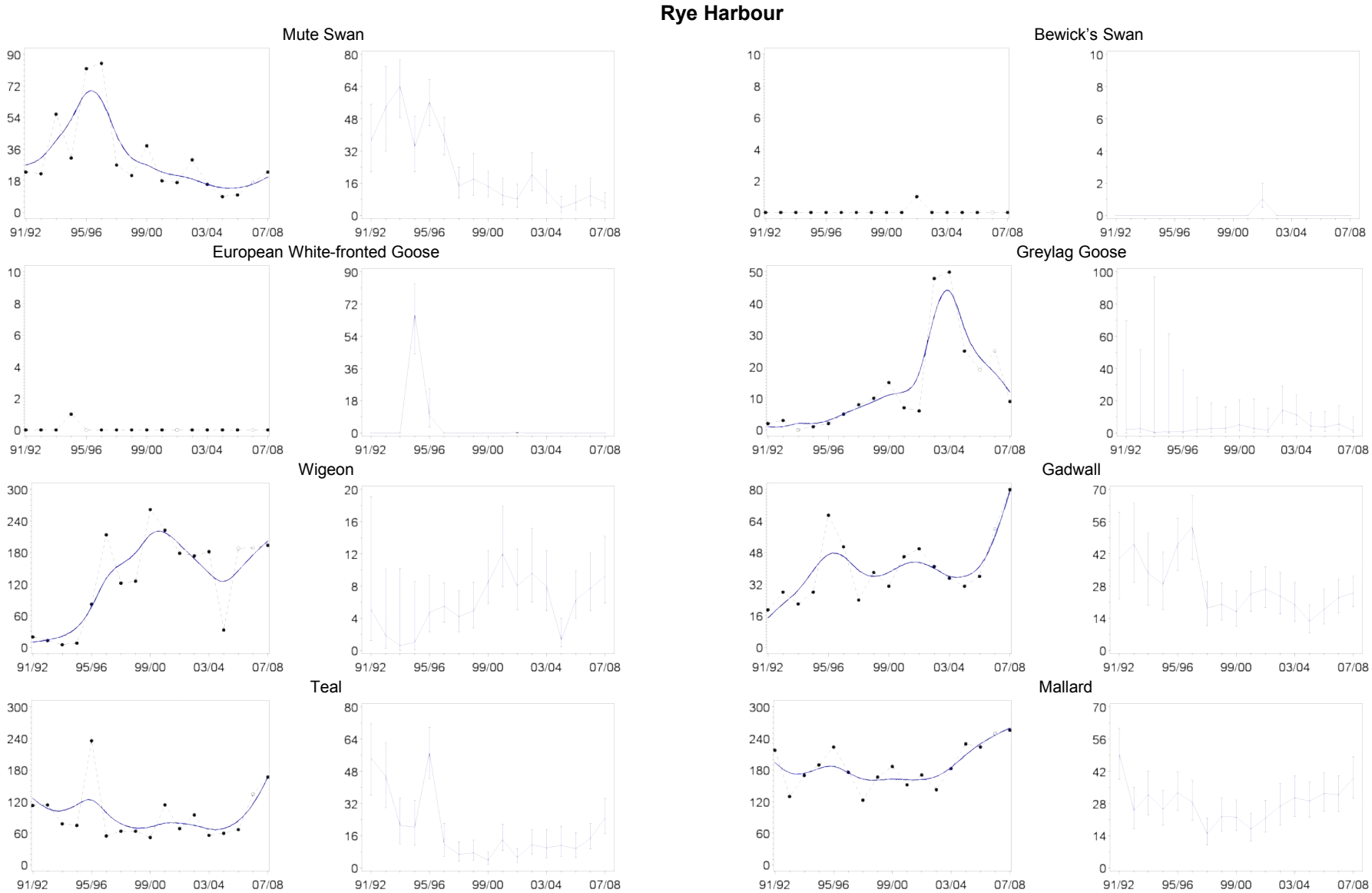
Plots depicting trends in numbers of waterbird species on each WeBS count sector of the Dungeness, Romney Marsh and Rye Bay SSSI and the proportional contribution of the sector to the total number recorded across the SSSI.

For each species, two graphs are presented: population trends of each on the WeBS count section in question (left-hand graph) and; the proportion of birds recorded by WeBS across the entire SSSI occurring on that sector (right-hand graph).

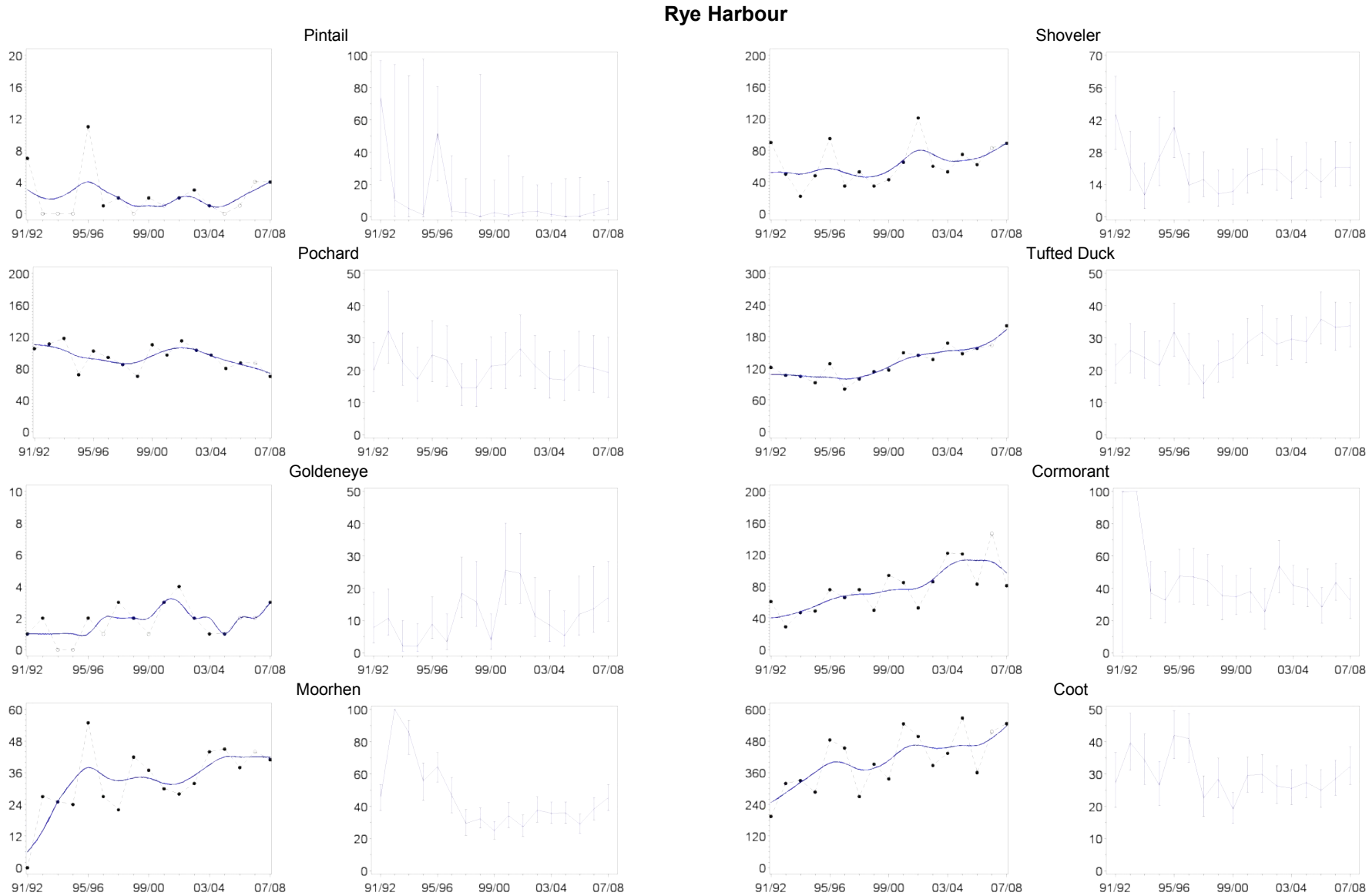
For the population trend graphs, plotted values represent the annual over-winter average and the trend is that derived by fitting the Generalized Additive Model through those values. It is on the smoothed trend that the percentage change over the three time frames has been calculated. Solid symbols indicate that counts are relatively complete, open symbols indicate that coverage was incomplete and numbers have been imputed.

For the proportional contribution graphs, plotted values represent the proportion of the SSSI total occurring on the sector in question modelled by month and winter. Confidence intervals for each winter therefore encompass both monthly variation and degree of confidence depending on number of individuals involved.

Figures are numbered with reference to the WeBS count sector codes.

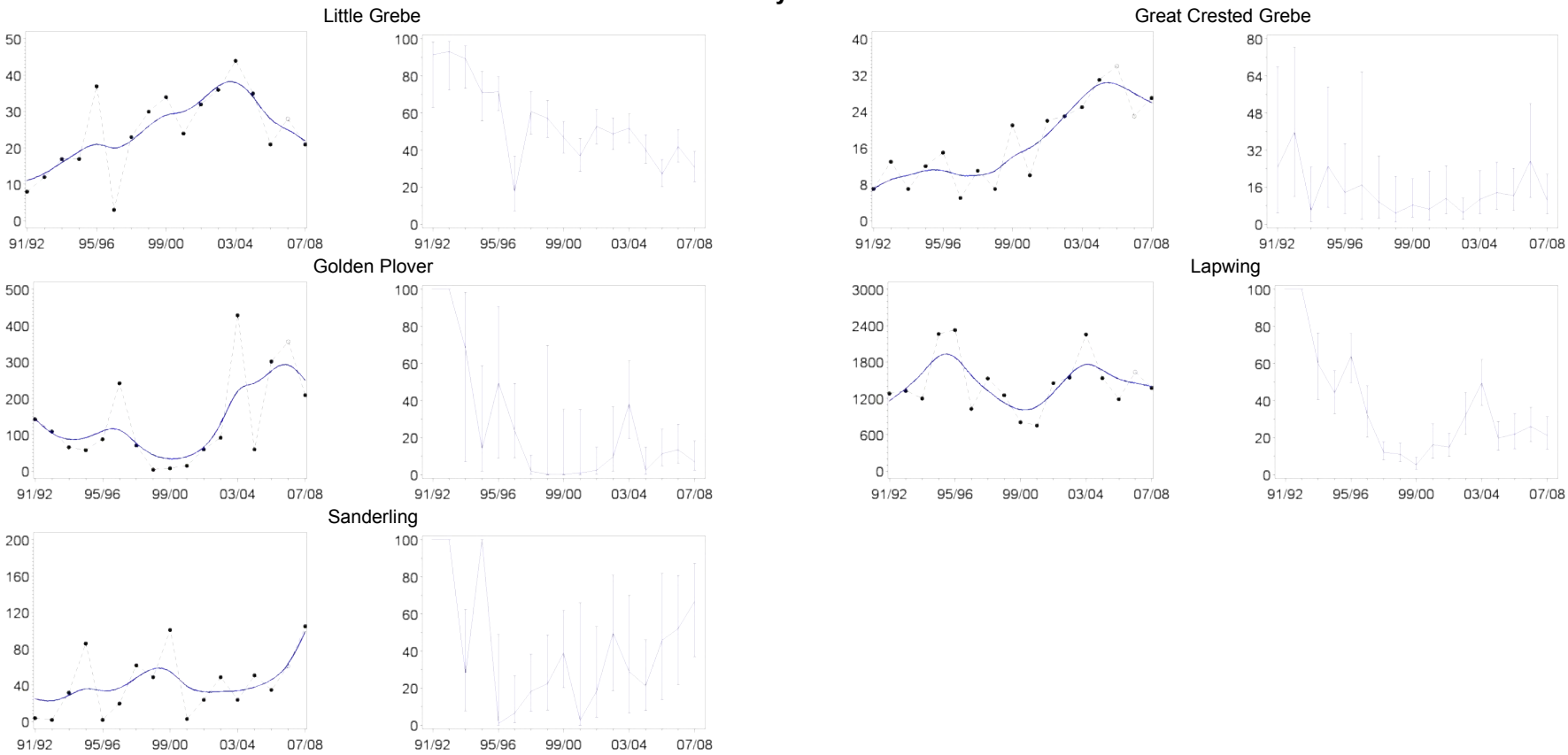


Appendix B, Figure B.21201. Population trends of each species in sector 21201 (Rye Harbour) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.21201. Continued

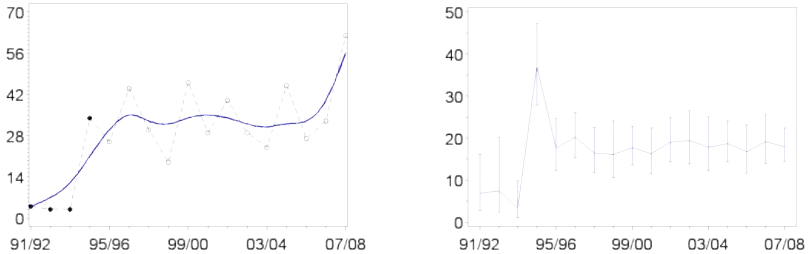
Rye Harbour



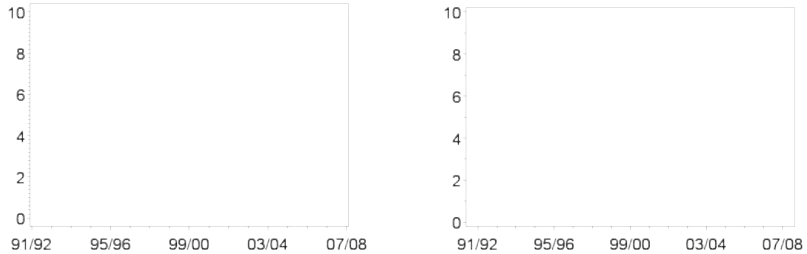
Appendix B, Figure B.21201. Continued

Pett Level excluding Pannel Valley

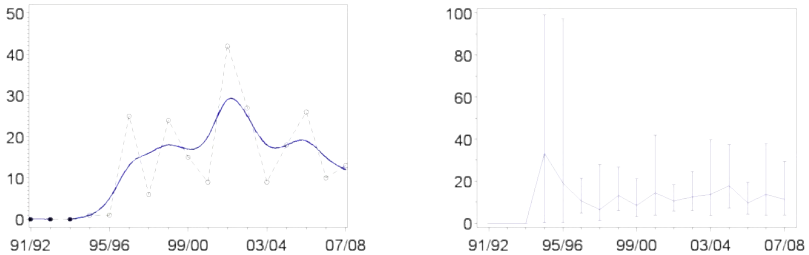
Mute Swan



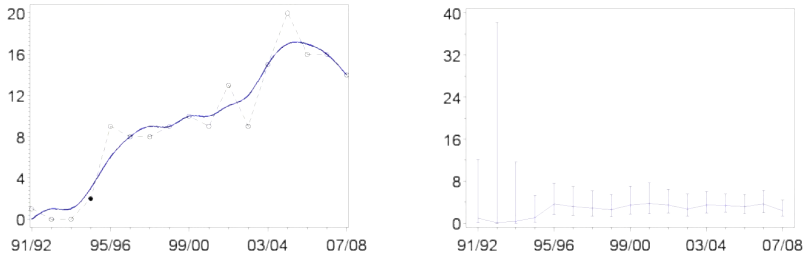
Bewick's Swan



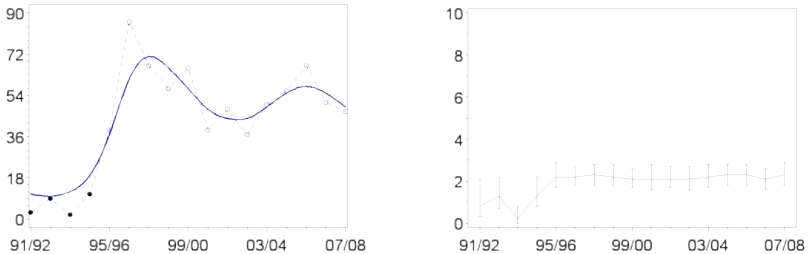
European White-fronted Goose



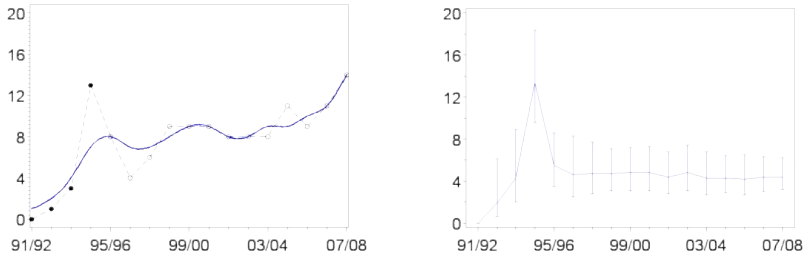
Greylag Goose



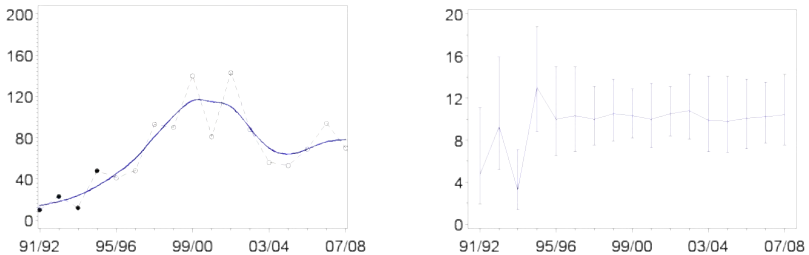
Wigeon



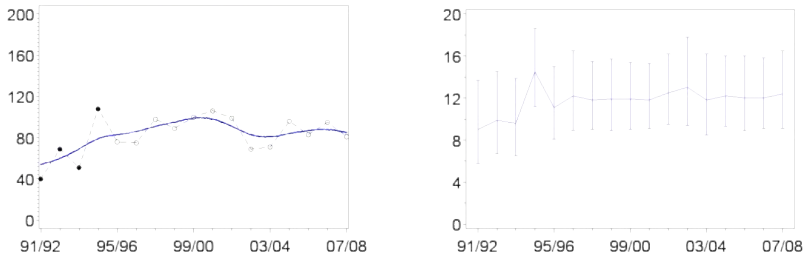
Gadwall



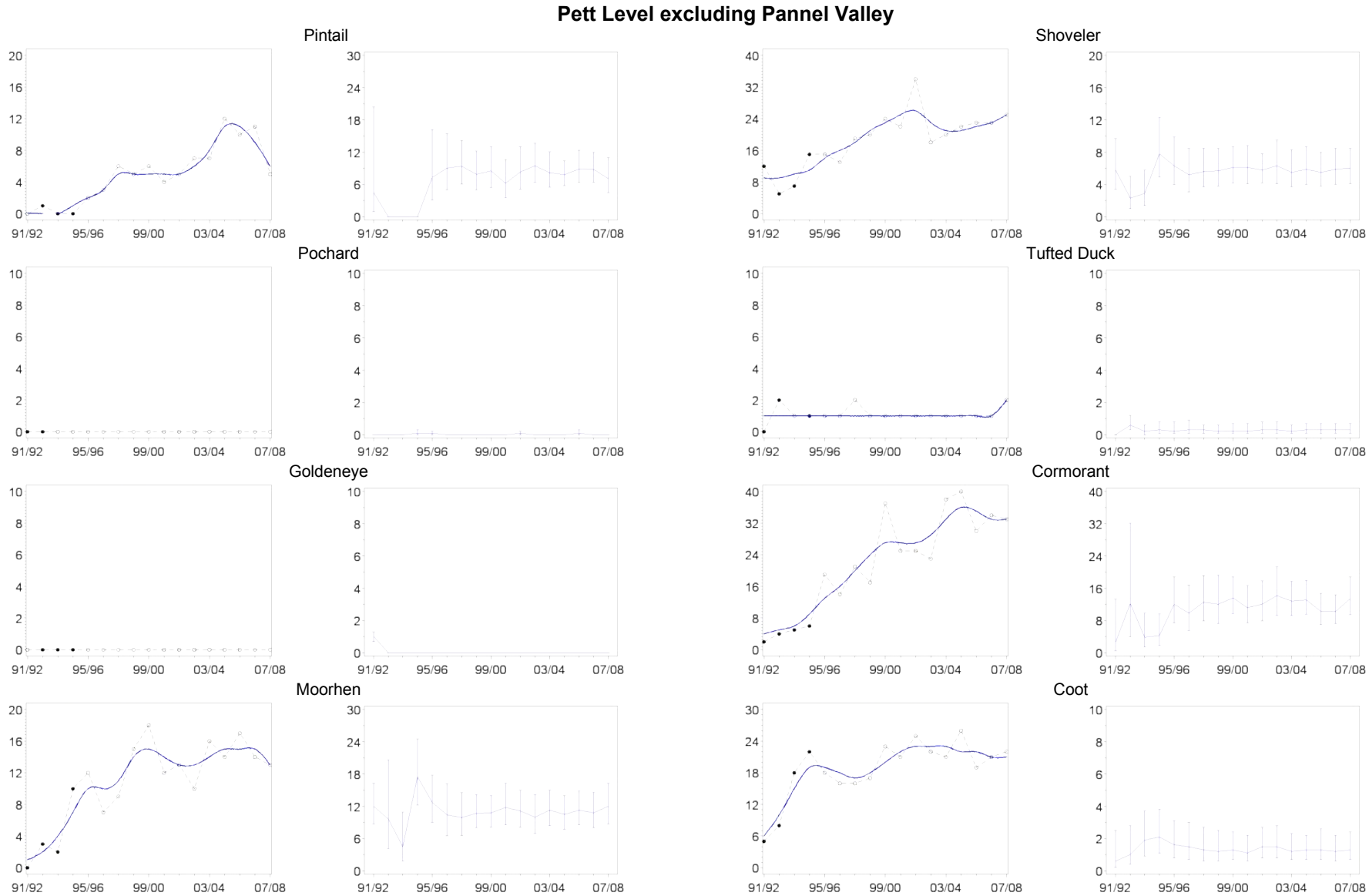
Teal



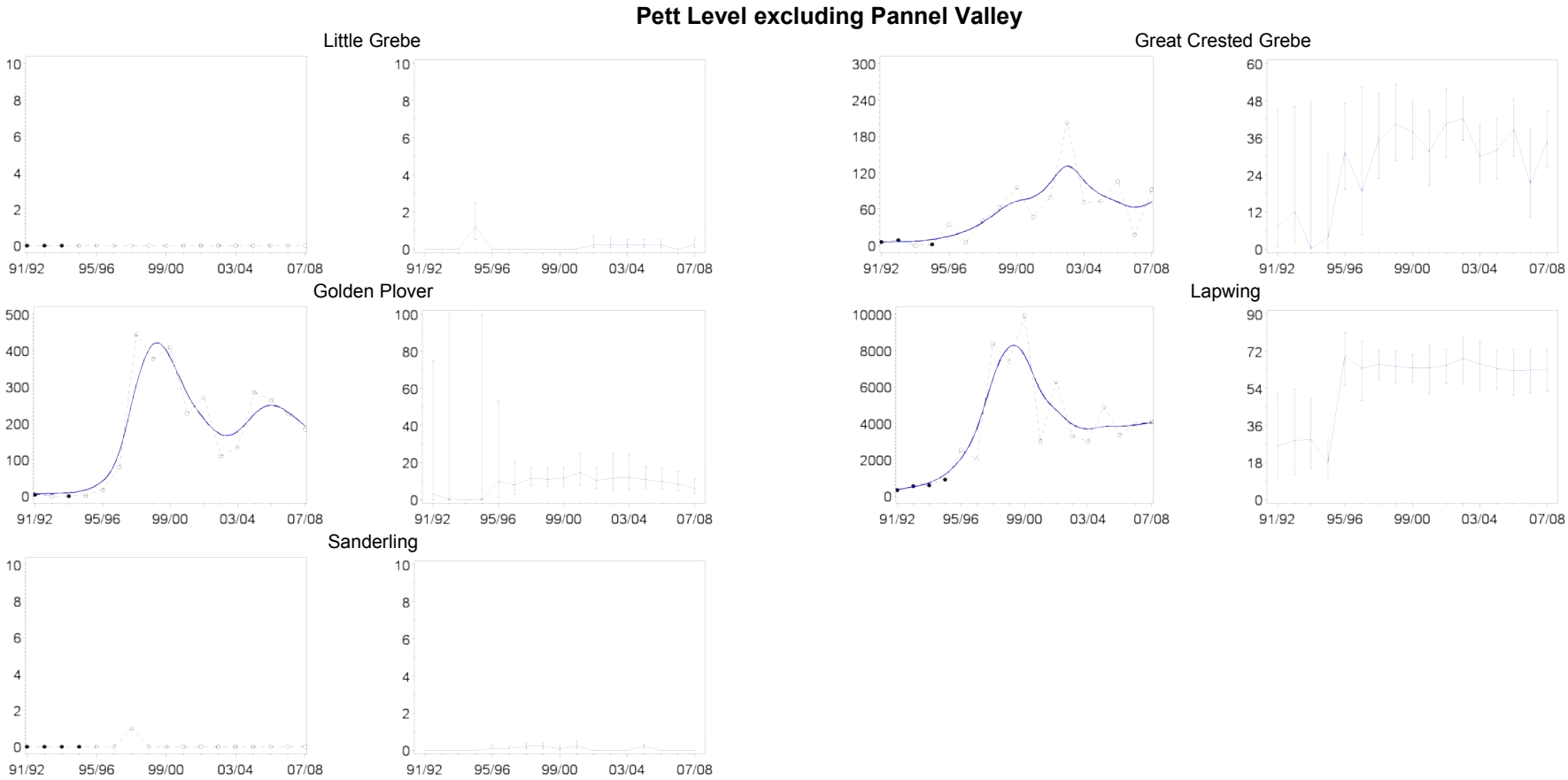
Mallard



Appendix B, Figure B.21361. Population trends of each species in sector 21361 (Pett Level excluding Pannel Valley) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



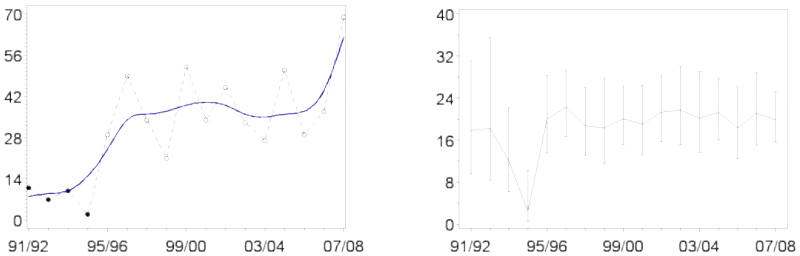
Appendix B, Figure B.21361. Continued



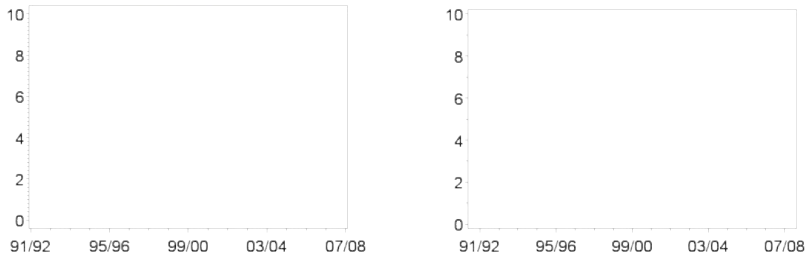
Appendix B, Figure B.21361. Continued

Pannel Valley

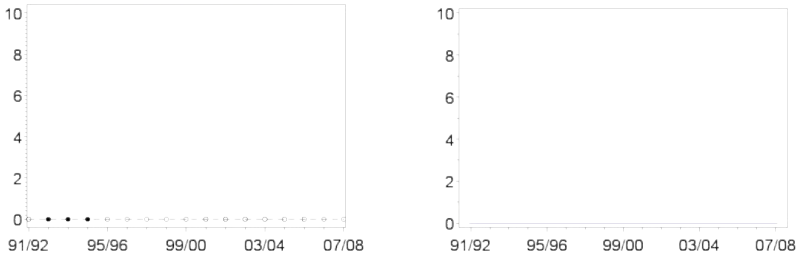
Mute Swan



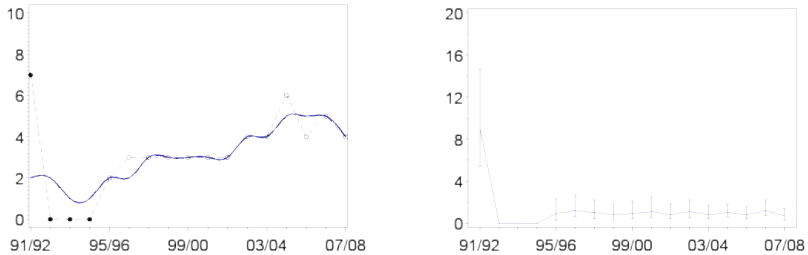
Bewick's Swan



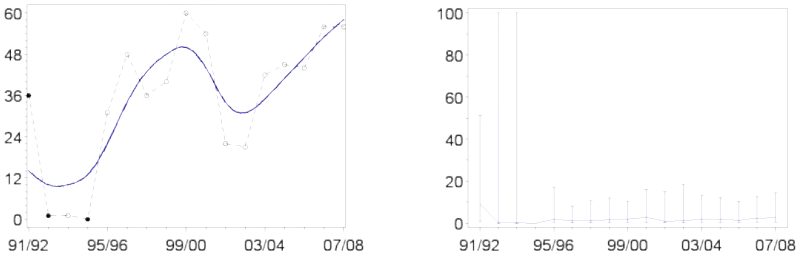
European White-fronted Goose



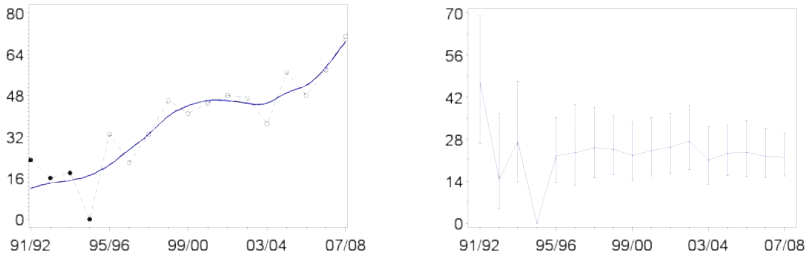
Greylag Goose



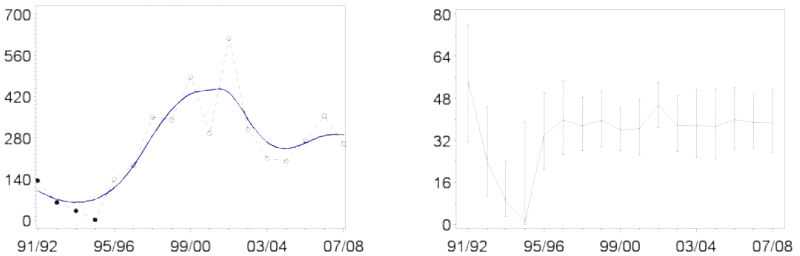
Wigeon



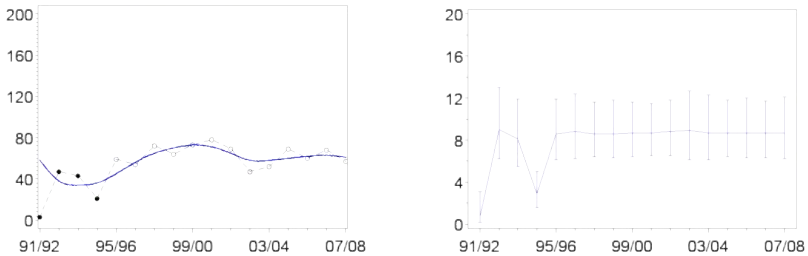
Gadwall



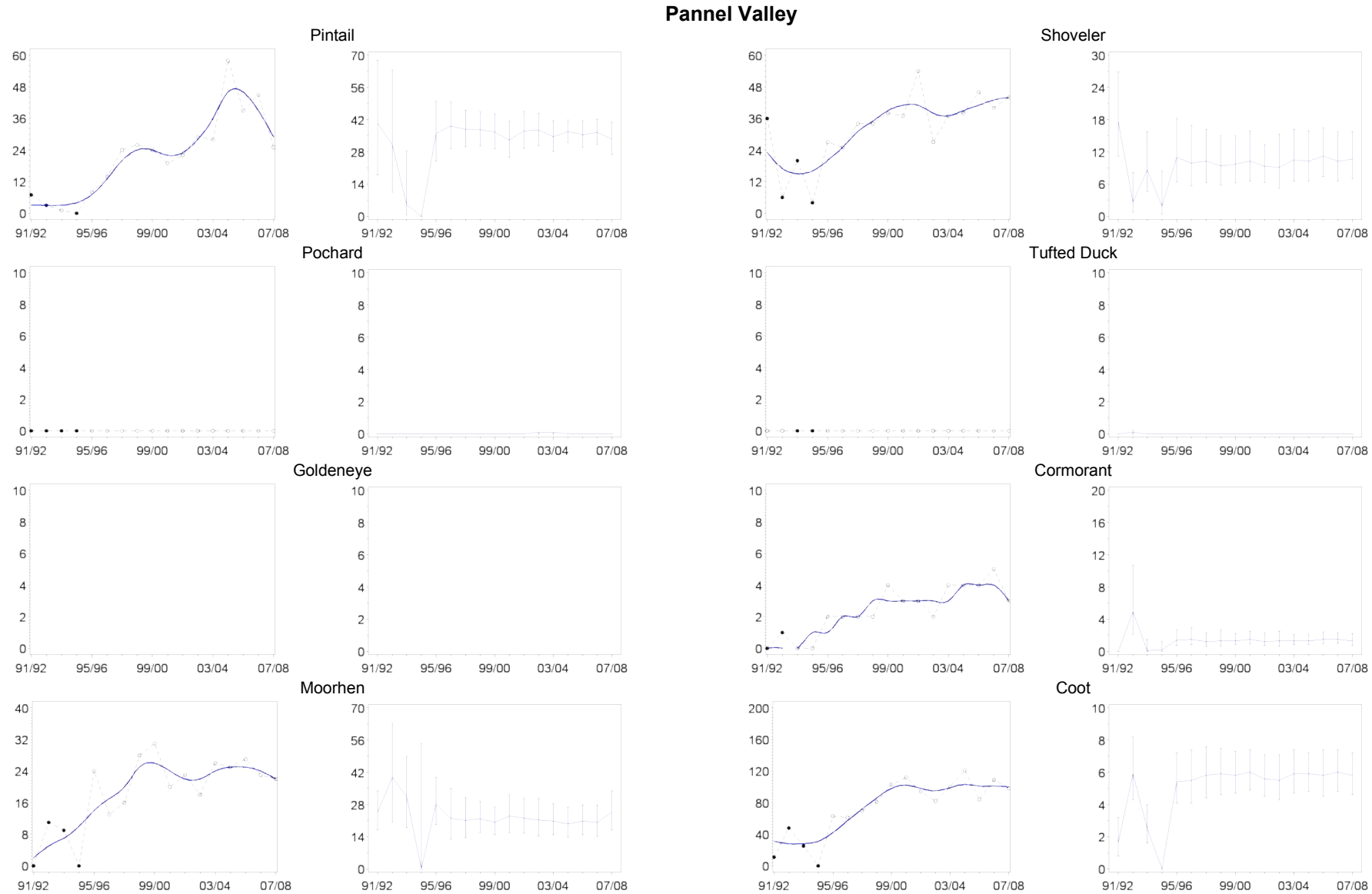
Teal



Mallard

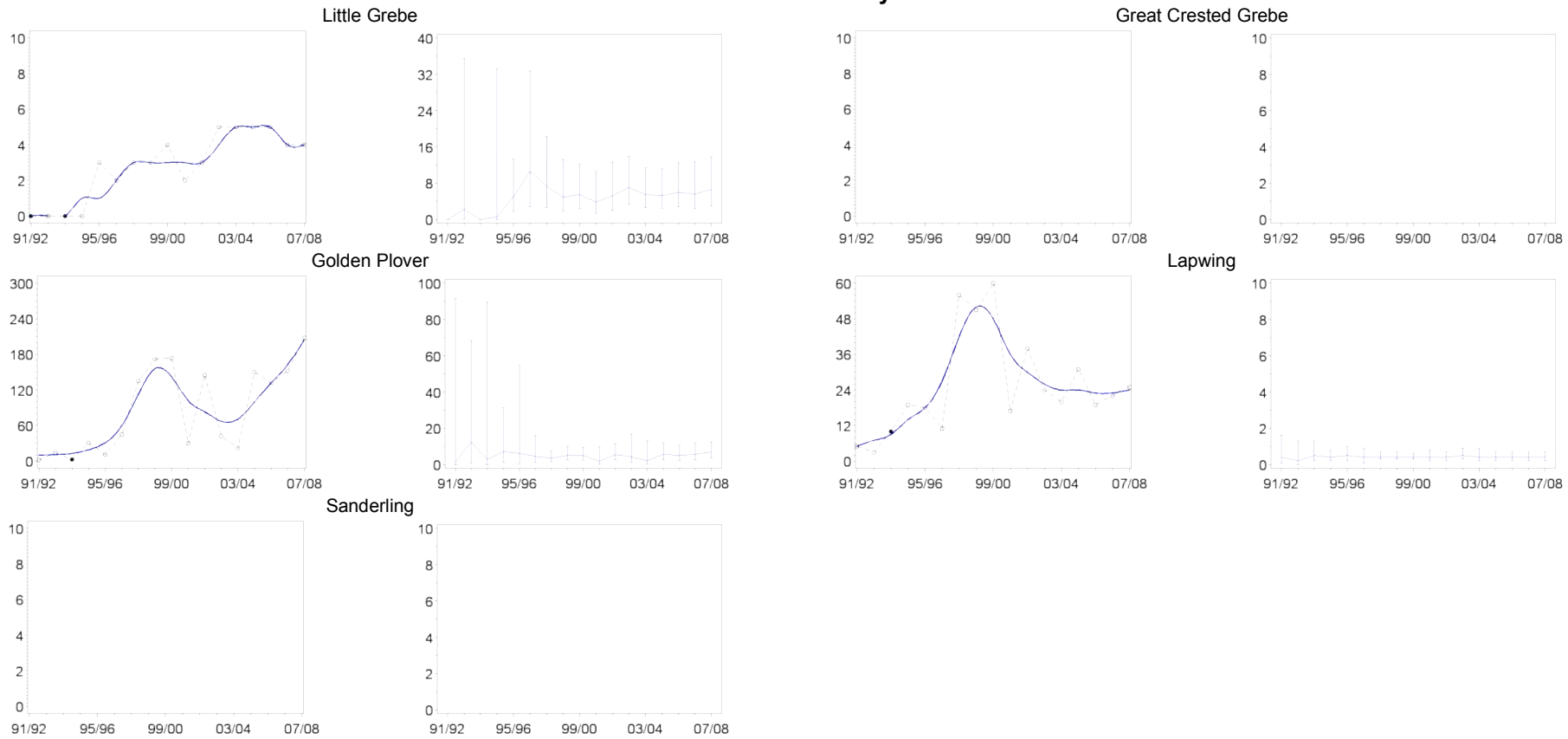


Appendix B, Figure B.21363. Population trends of each species in sector 21363 (Pannel Valley) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.21363. Continued

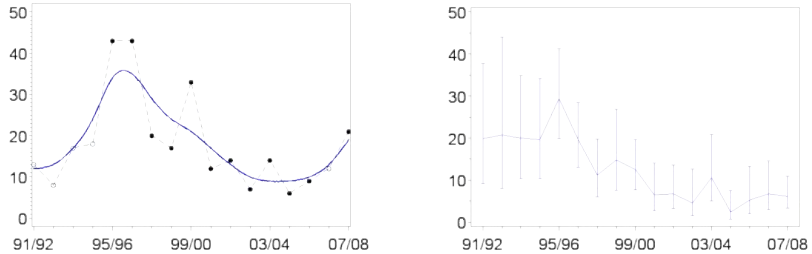
Pannel Valley



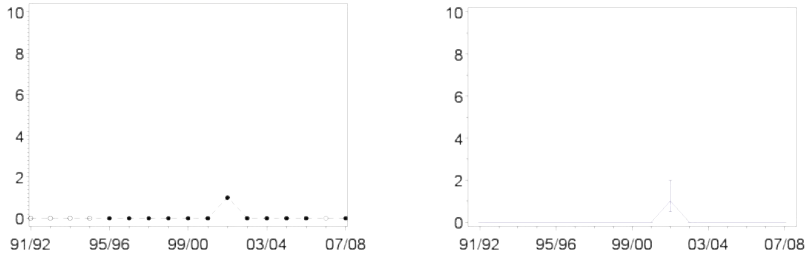
Appendix B, Figure B.21363. Continued

Rye Harbour SSSI area

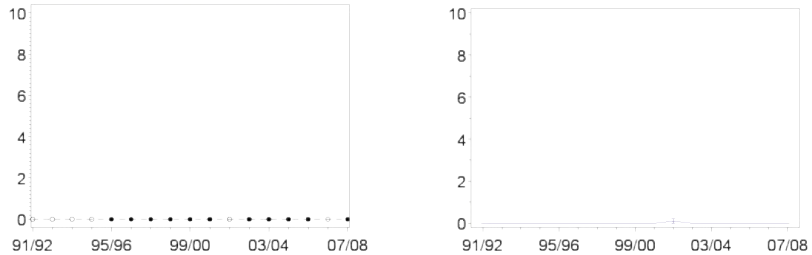
Mute Swan



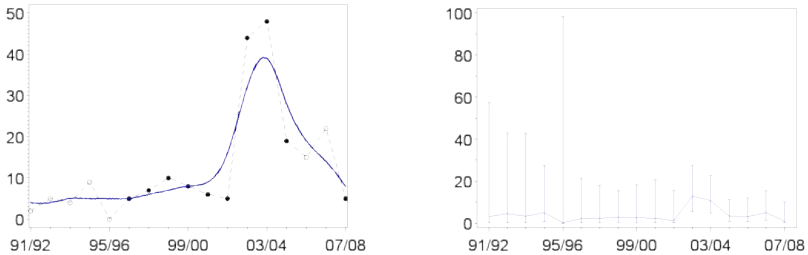
Bewick's Swan



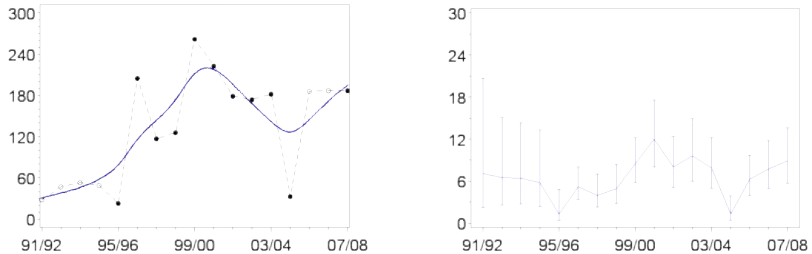
European White-fronted Goose



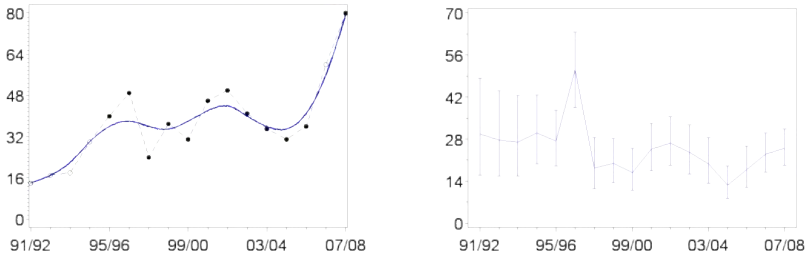
Greylag Goose



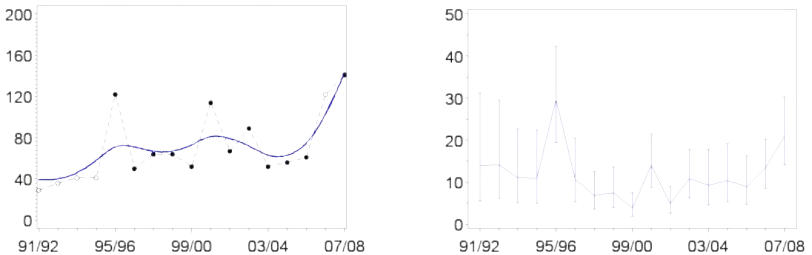
Wigeon



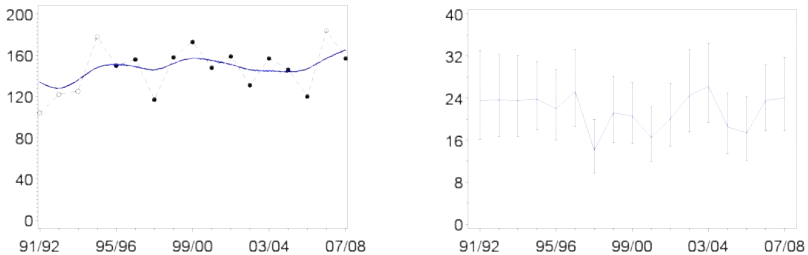
Gadwall



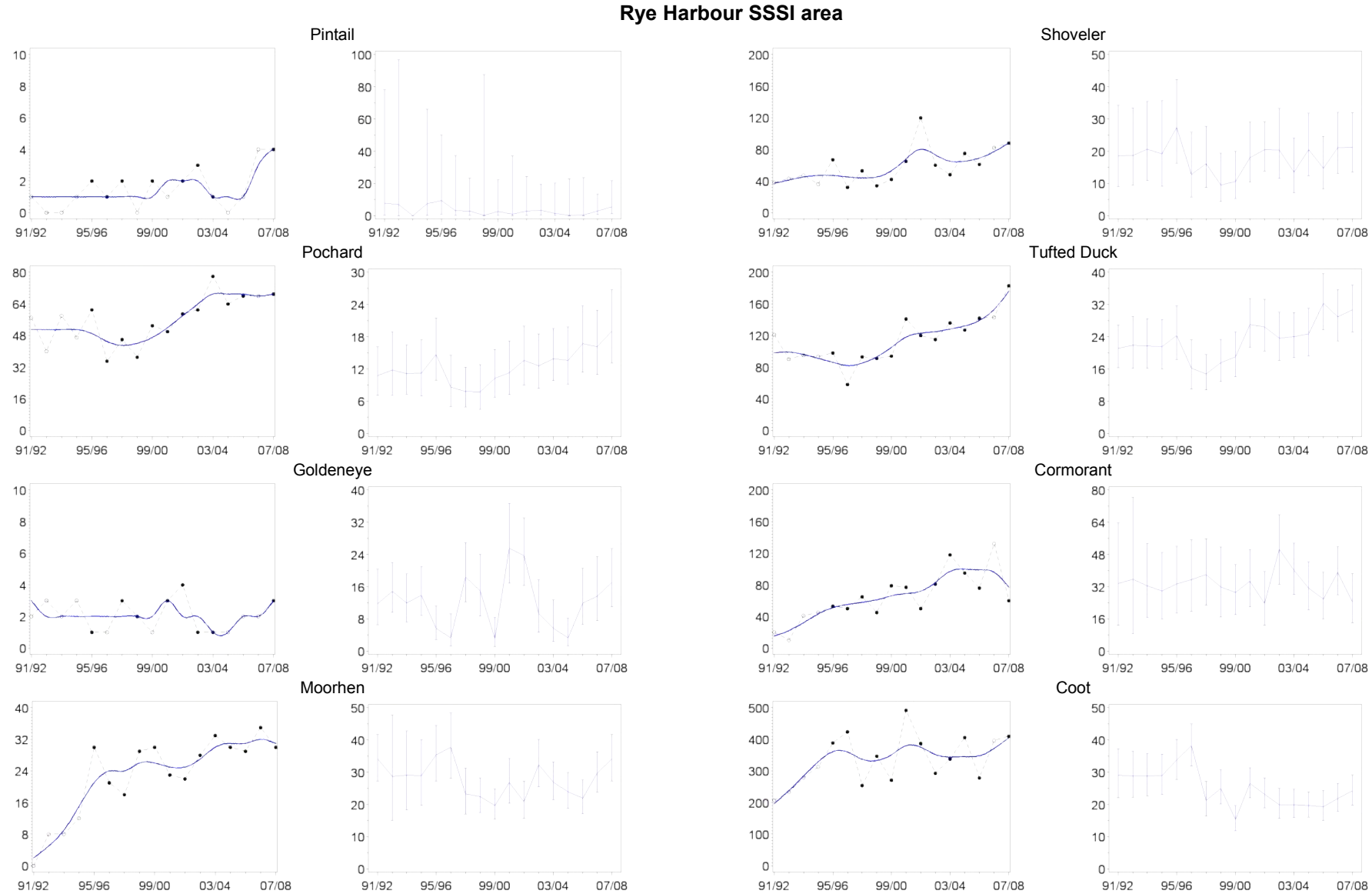
Teal



Mallard

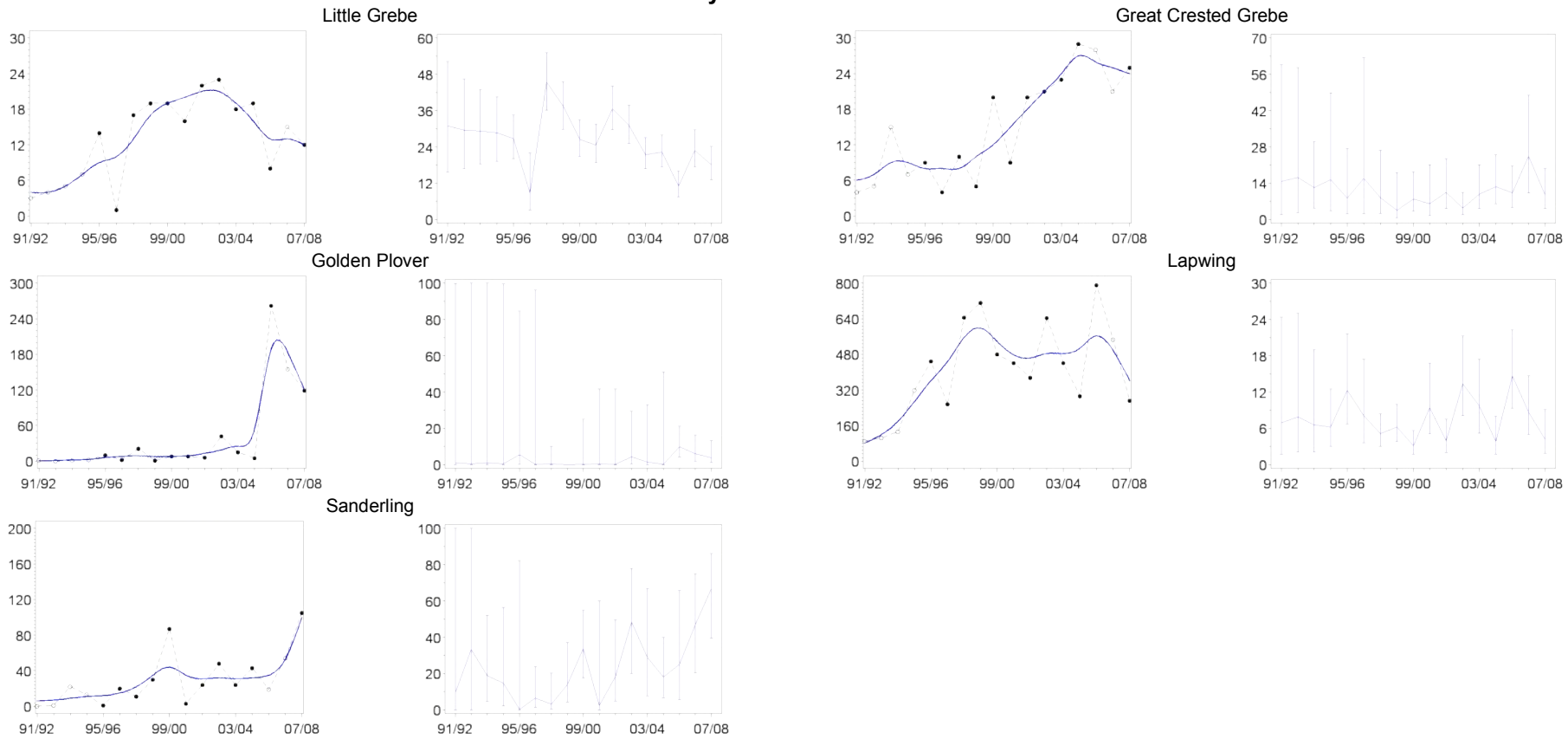


Appendix B, Figure B.21364. Population trends of each species in sector 21364 (Rye Harbour - SSSI area) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.21364. Continued

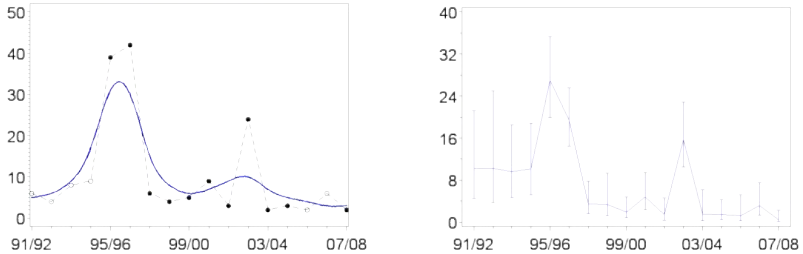
Rye Harbour SSSI area



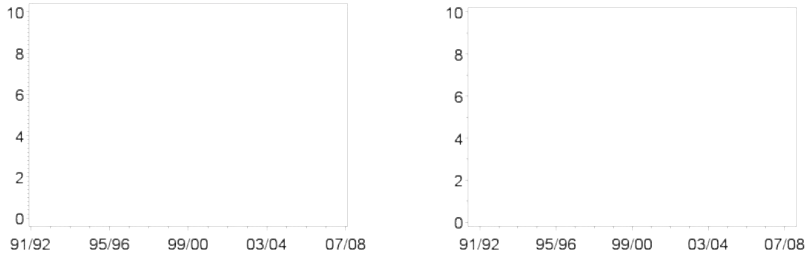
Appendix B, Figure B.21364. Continued

Camber and East Guldeford

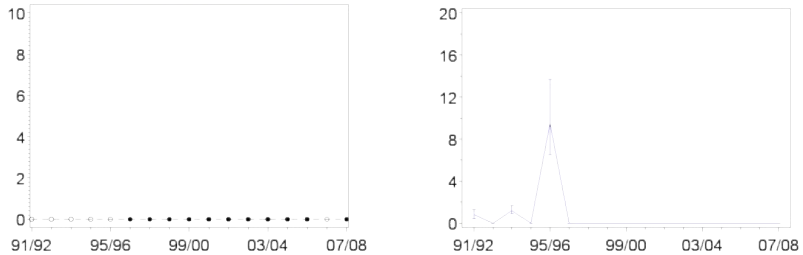
Mute Swan



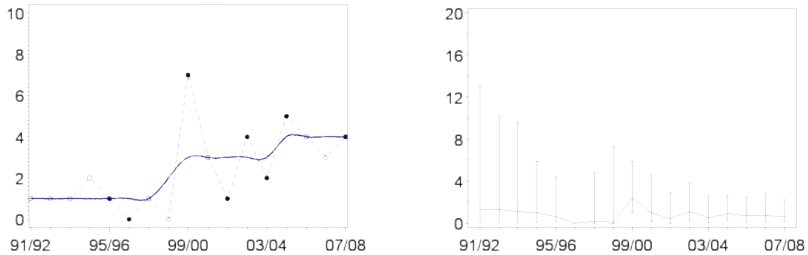
Bewick's Swan



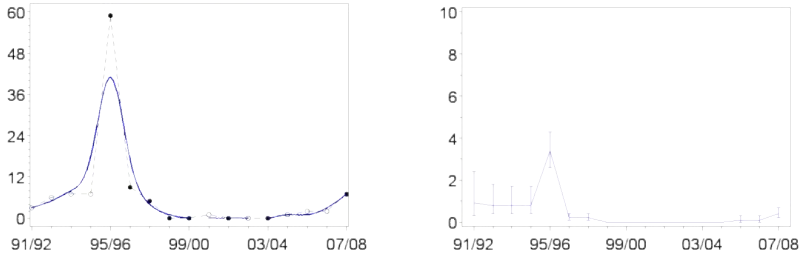
European White-fronted Goose



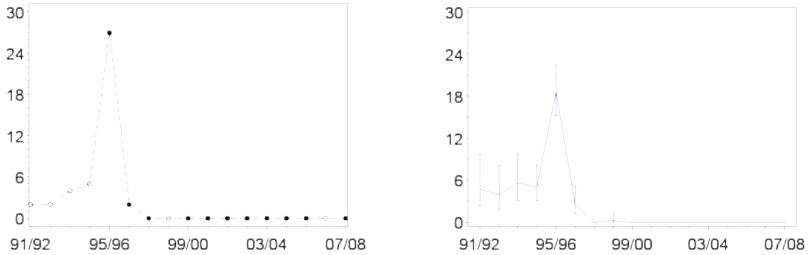
Greylag Goose



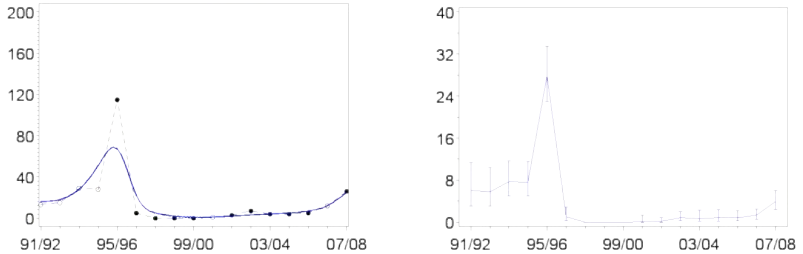
Wigeon



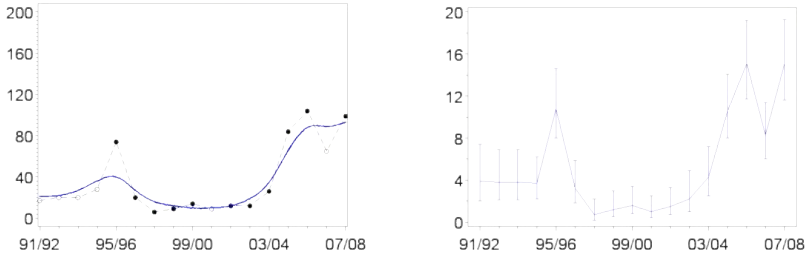
Gadwall



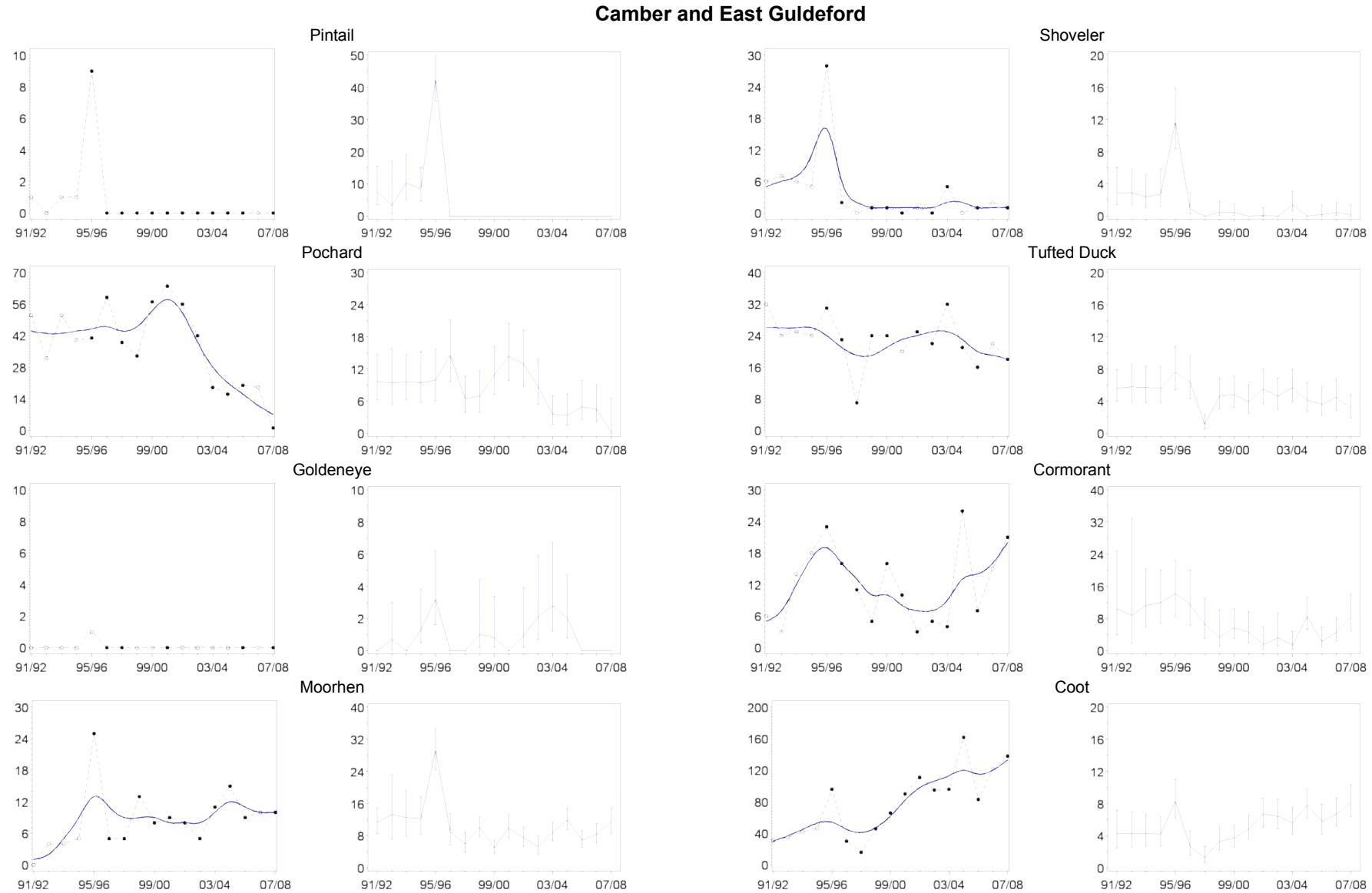
Teal



Mallard

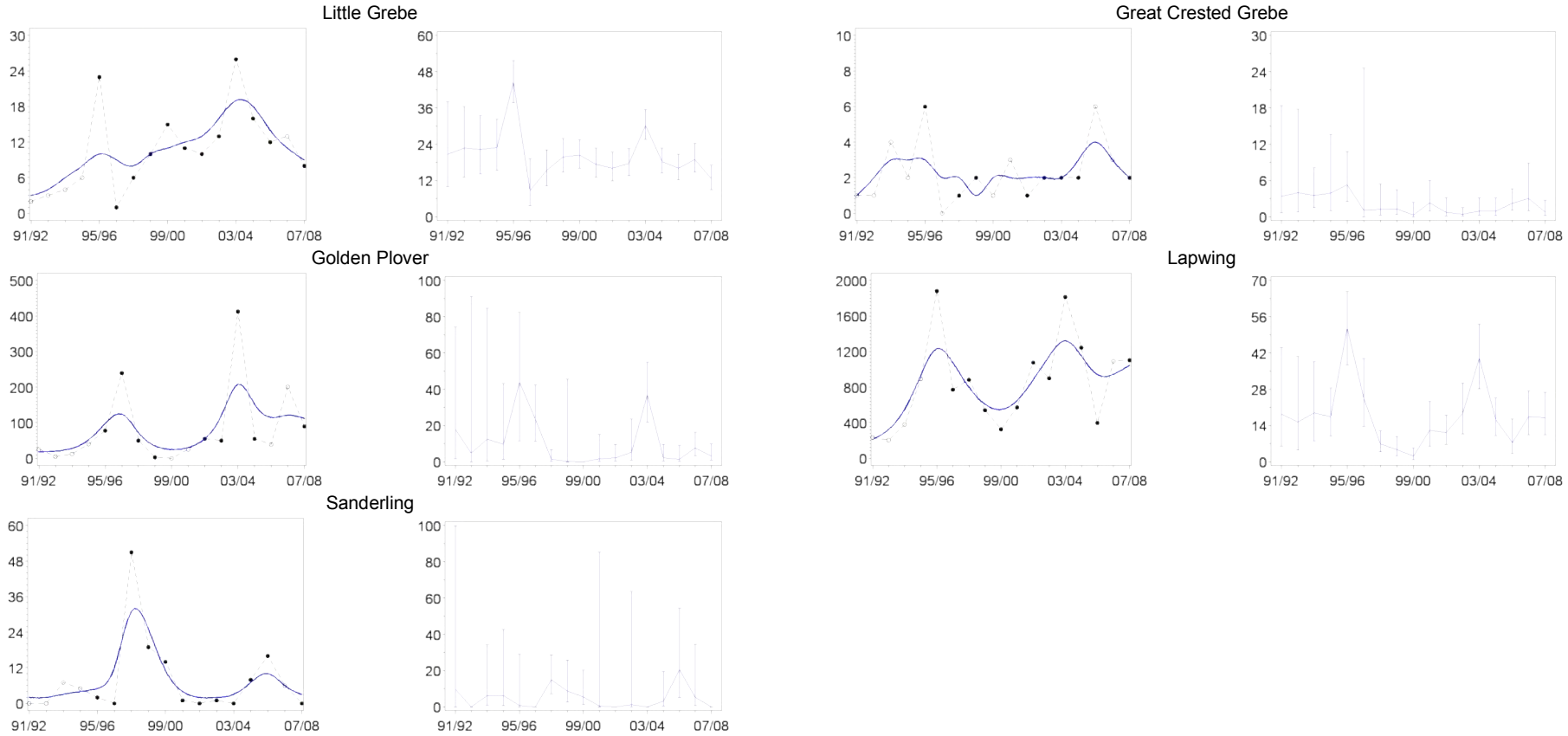


Appendix B, Figure B.21365. Population trends of each species in sector 21365 (Camber and East Guldeford) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.21365. Continued

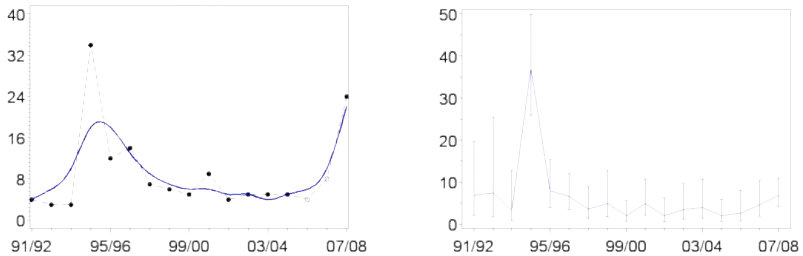
Camber and East Guldeford



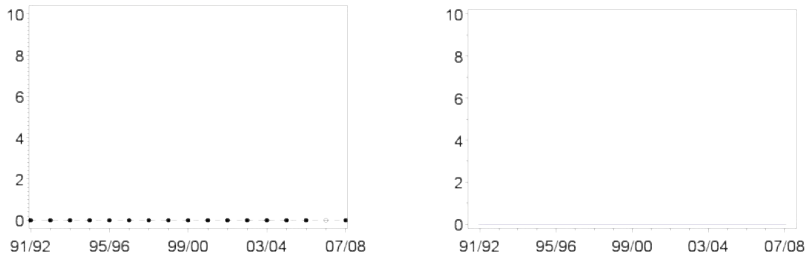
Appendix B, Figure B.21365. Continued

Pett Level

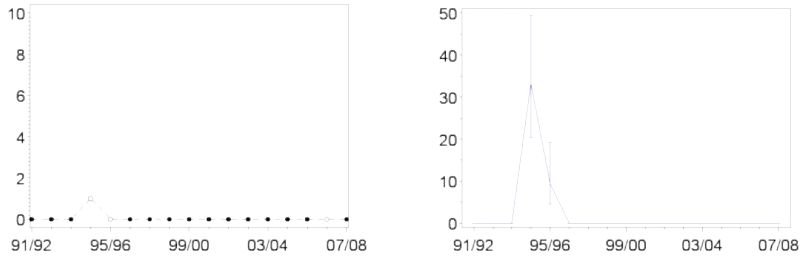
Mute Swan



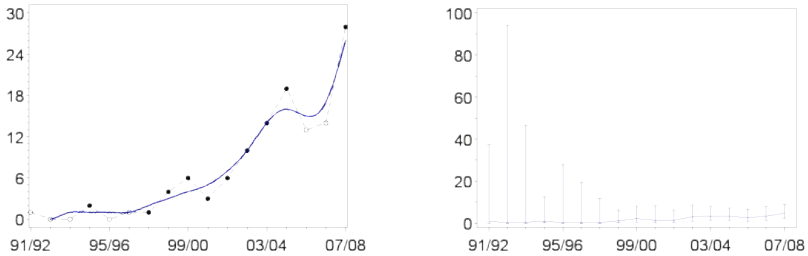
Bewick's Swan



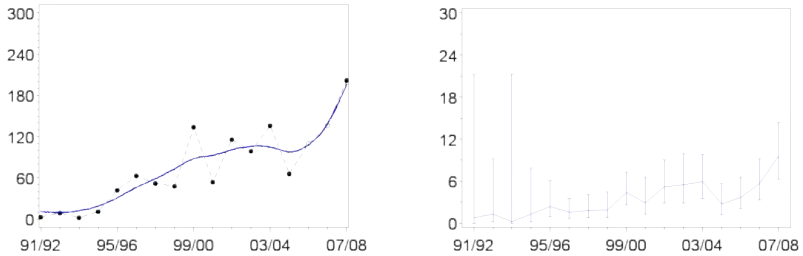
European White-fronted Goose



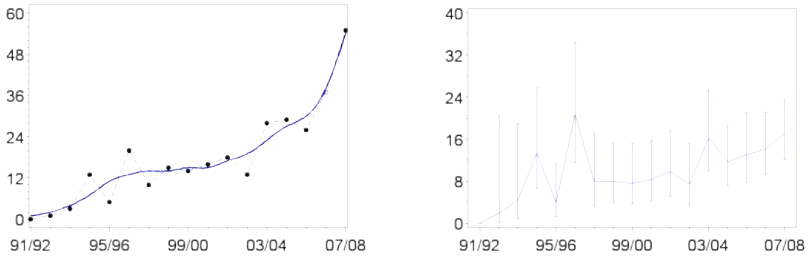
Greylag Goose



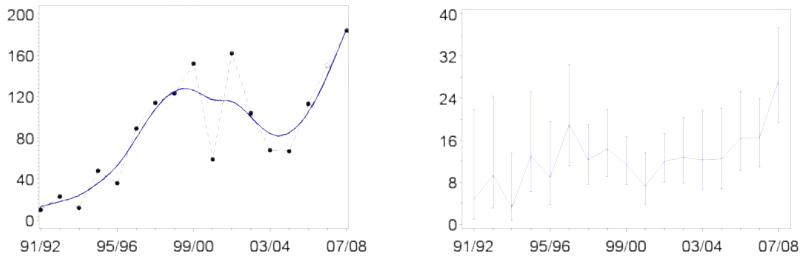
Wigeon



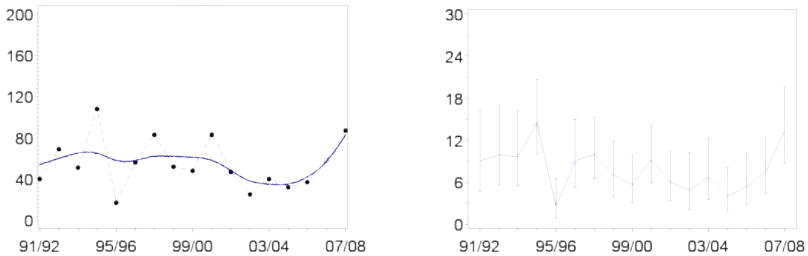
Gadwall



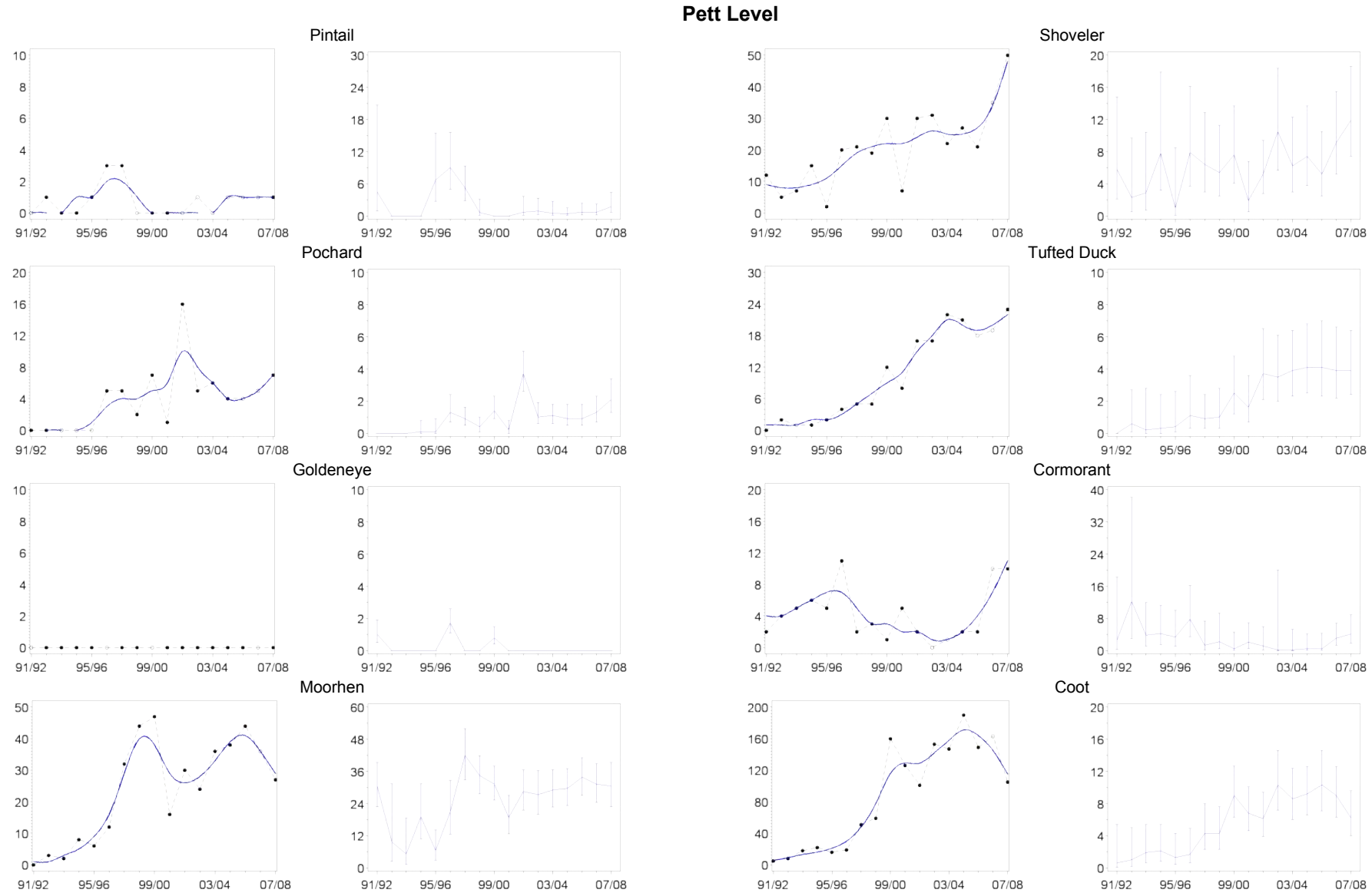
Teal



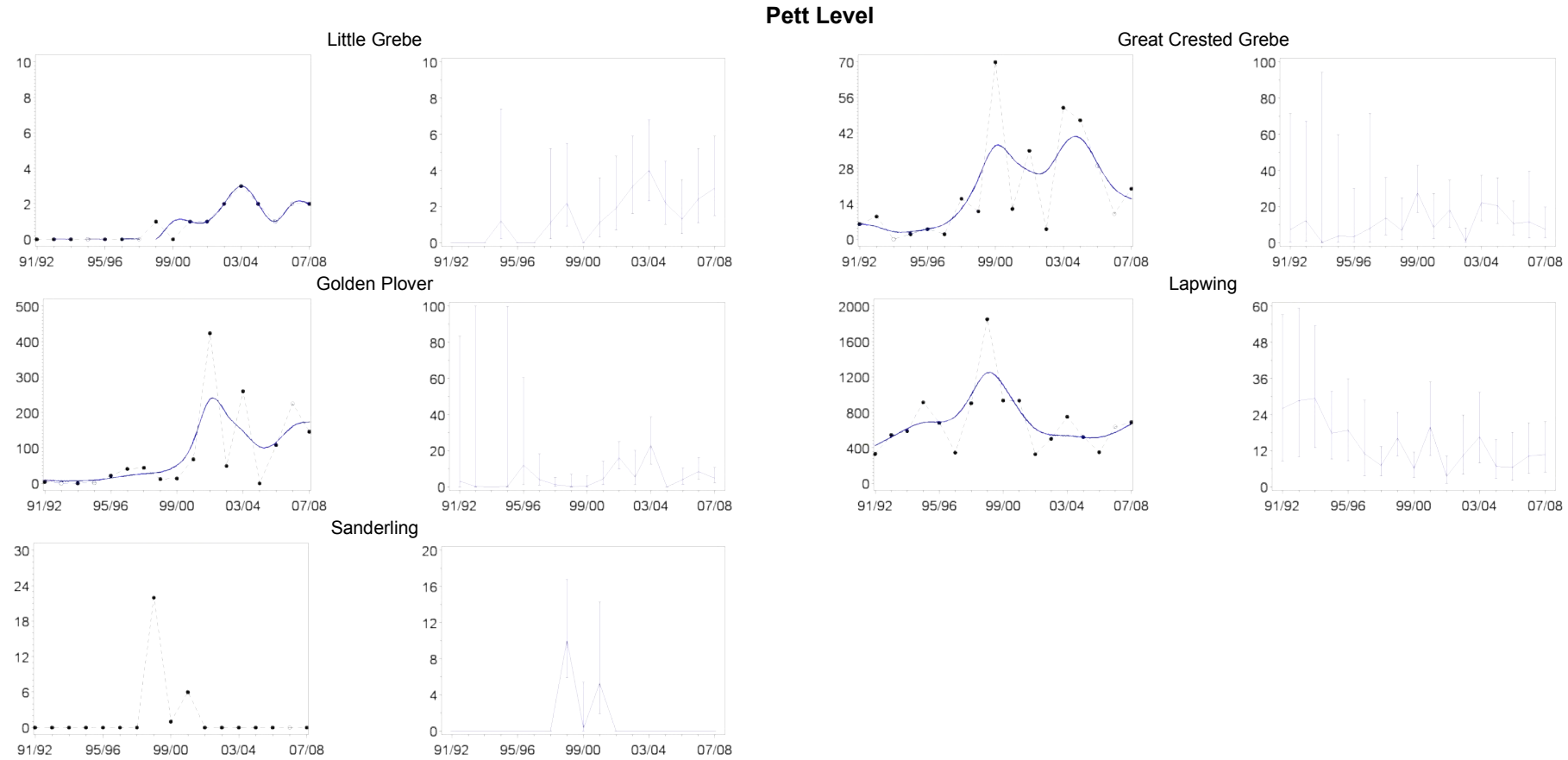
Mallard



Appendix B, Figure B.21366. Population trends of each species in sector 21366 (Pett Level) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



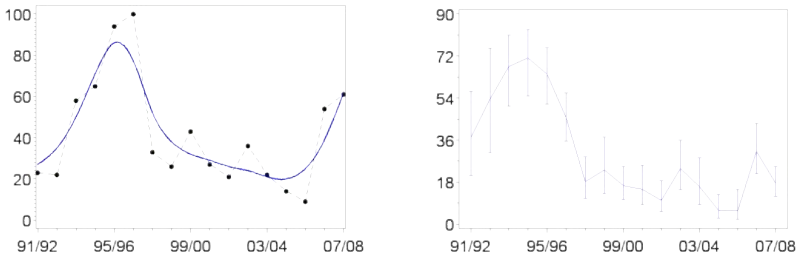
Appendix B, Figure B.21366. Continued



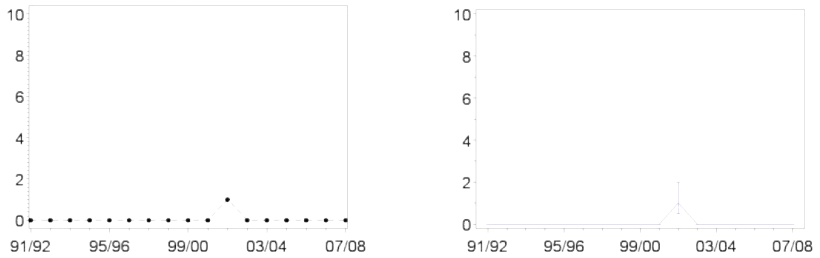
Appendix B, Figure B.21366. Continued

Rye Bay

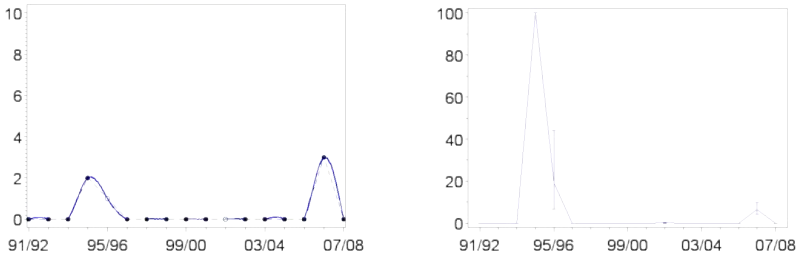
Mute Swan



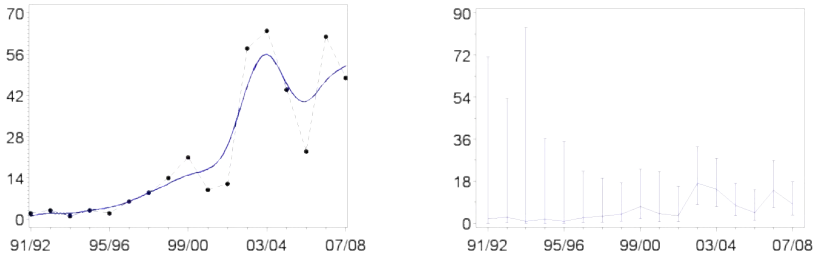
Bewick's Swan



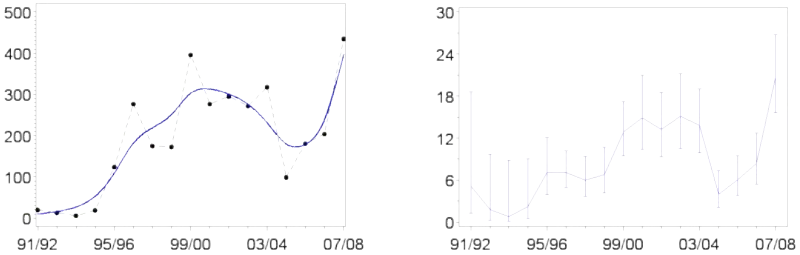
European White-fronted Goose



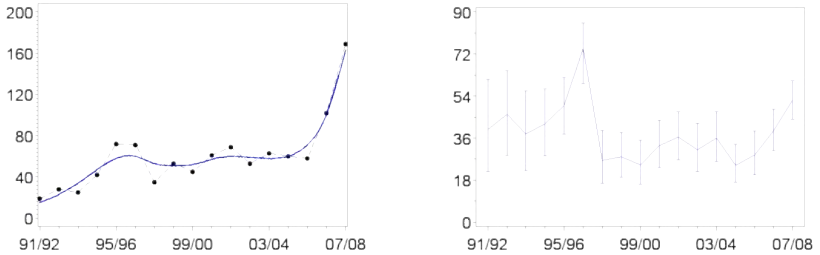
Greylag Goose



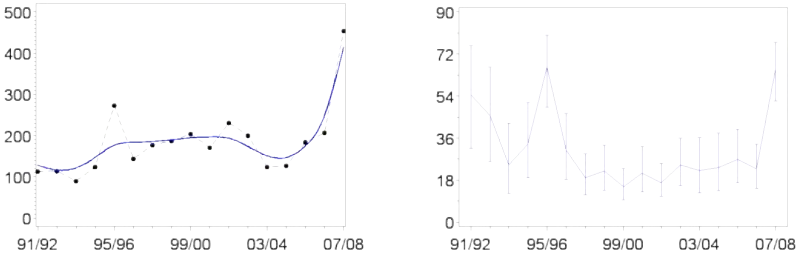
Wigeon



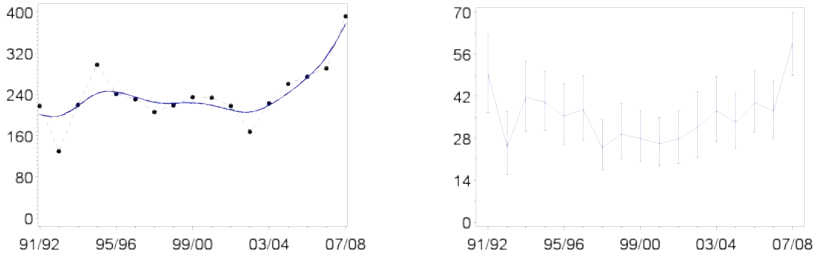
Gadwall



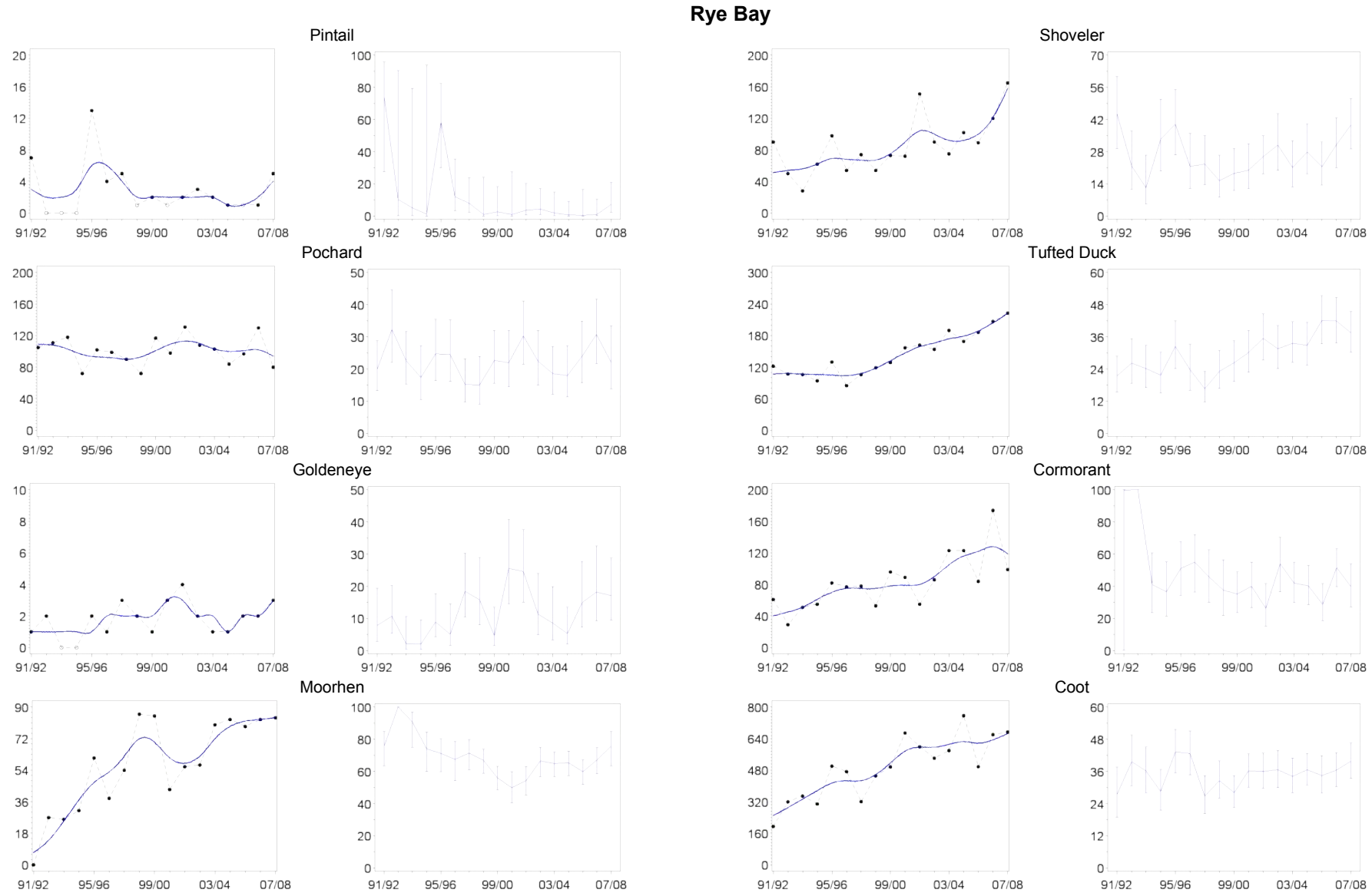
Teal



Mallard

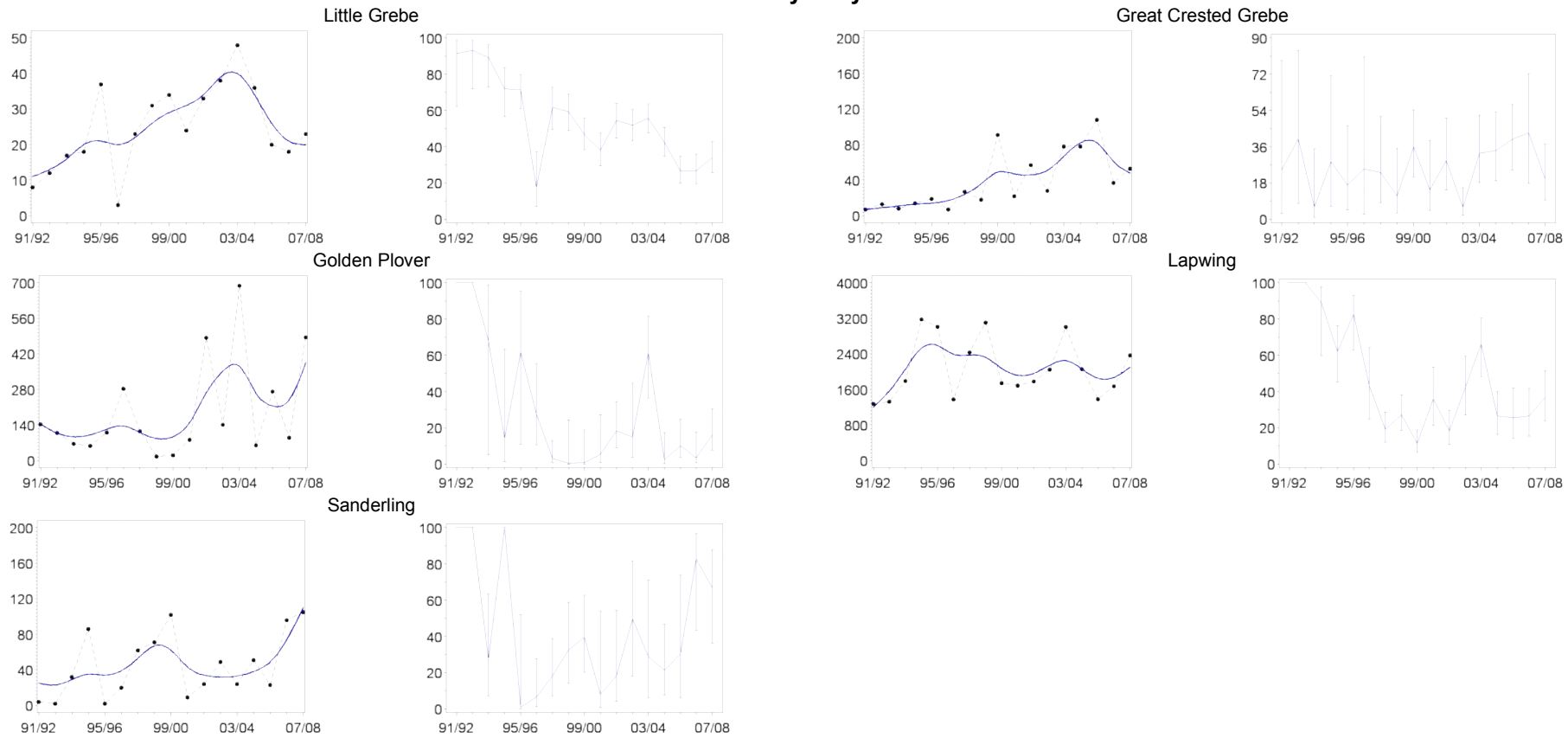


Appendix B, Figure B.21420. Population trends of each species in sector 21420 (Rye Bay) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.21420. Continued

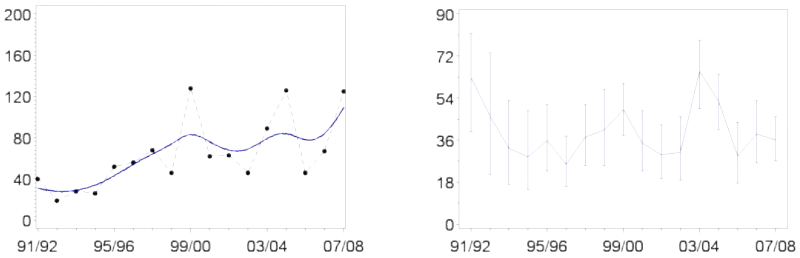
Rye Bay



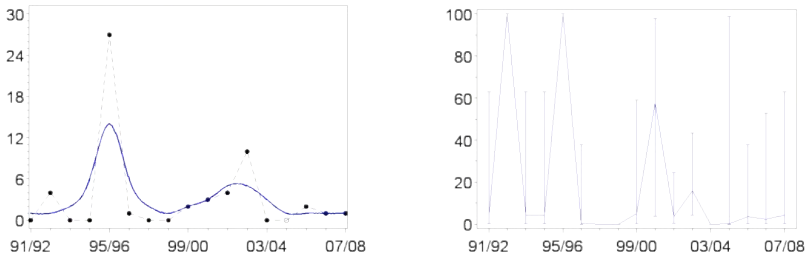
Appendix B, Figure B.21420. Continued

Dungeness Gravel Pits

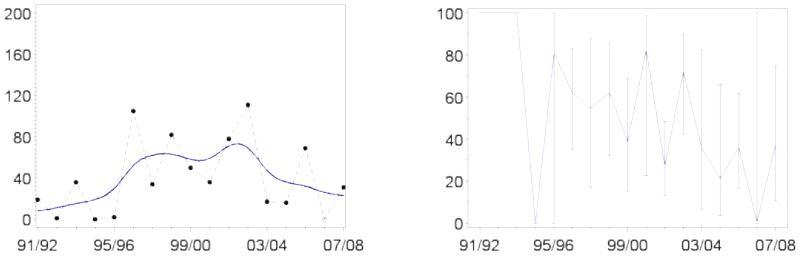
Mute Swan



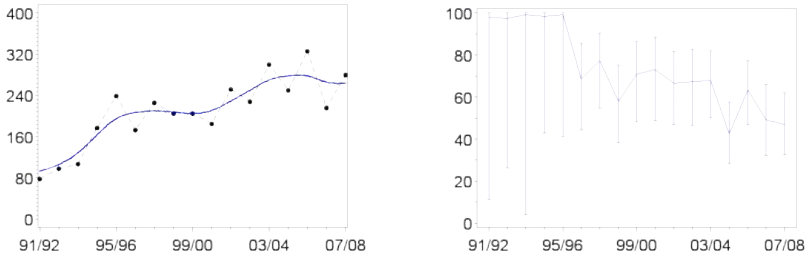
Bewick's Swan



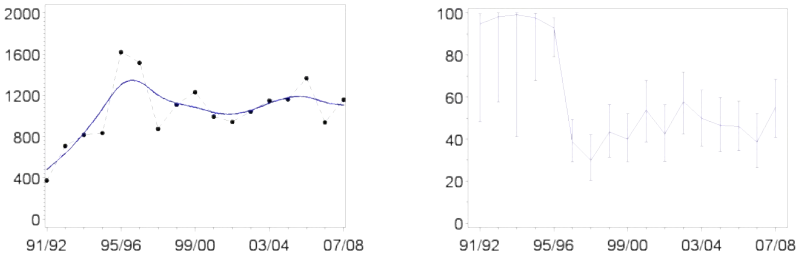
European White-fronted Goose



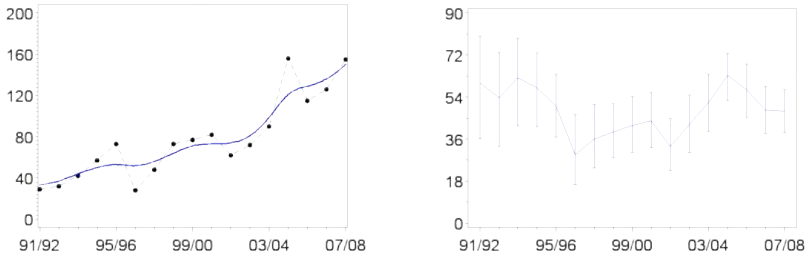
Greylag Goose



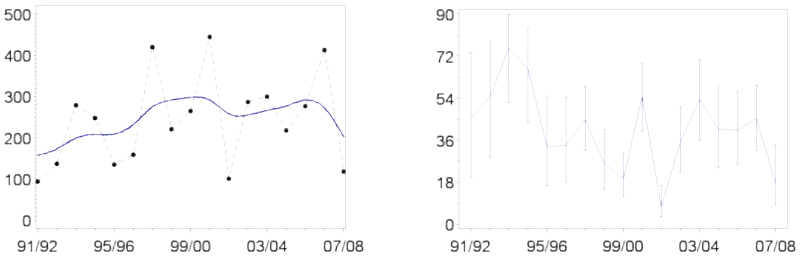
Wigeon



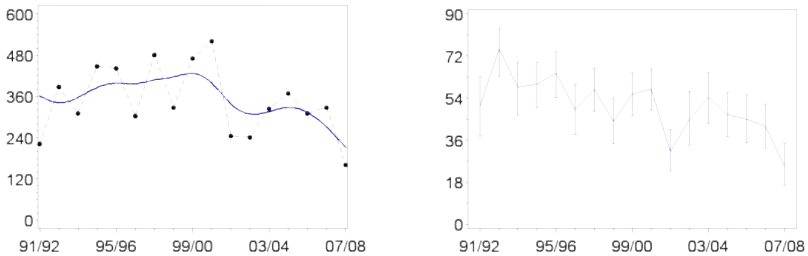
Gadwall



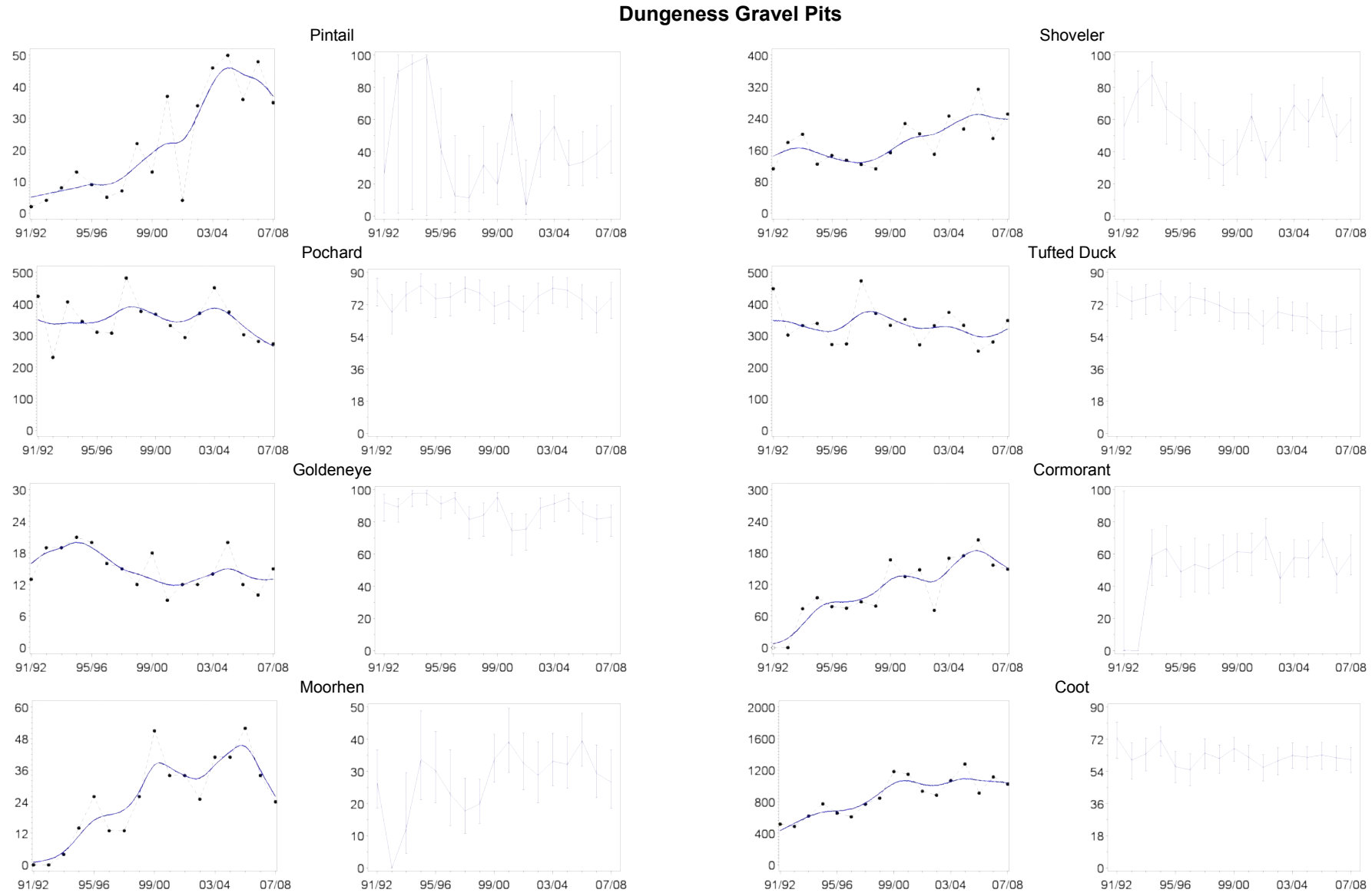
Teal



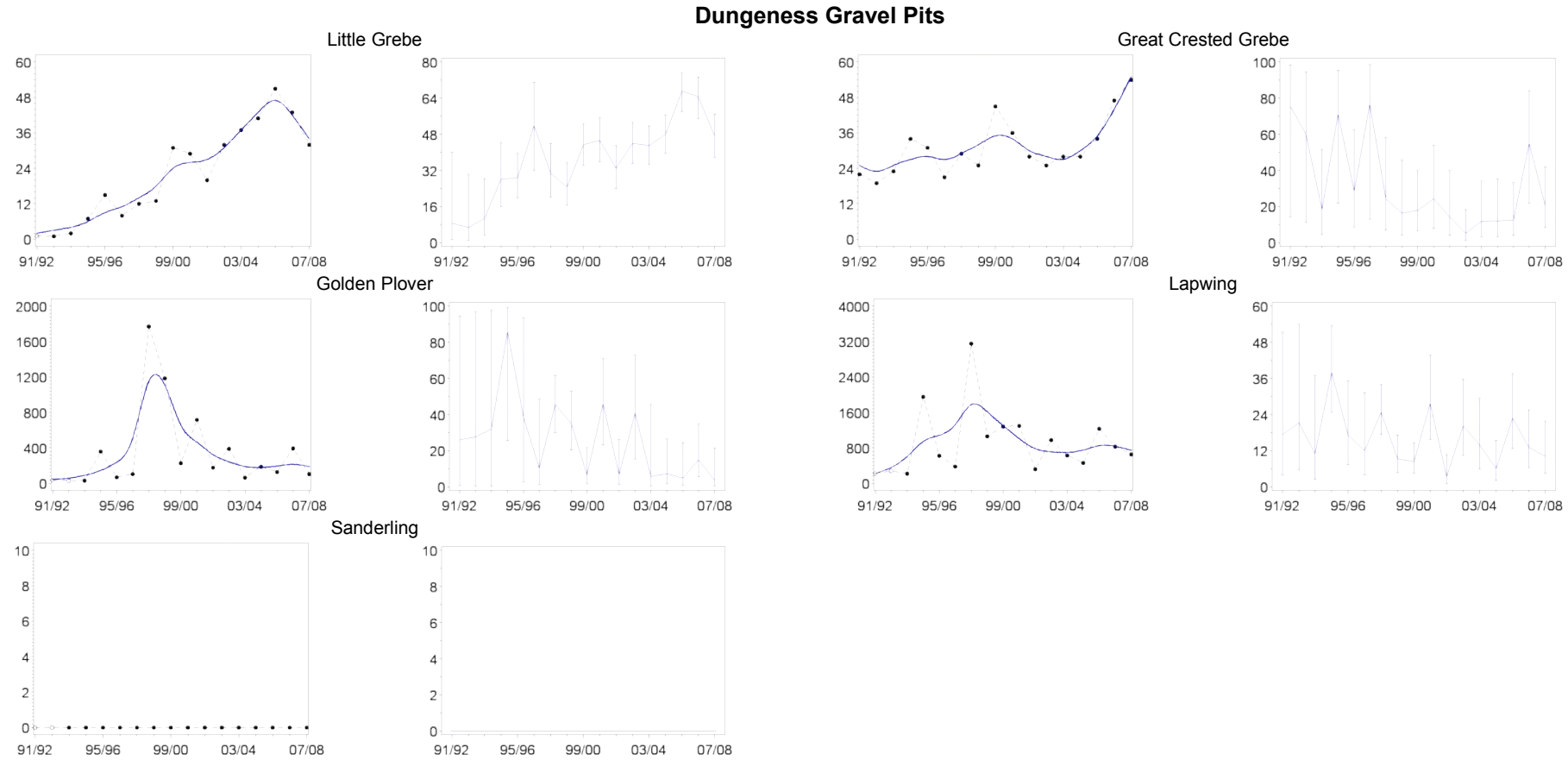
Mallard



Appendix B, Figure B.22291. Population trends of each species in sector 22291 (Dungeness Gravel Pits) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



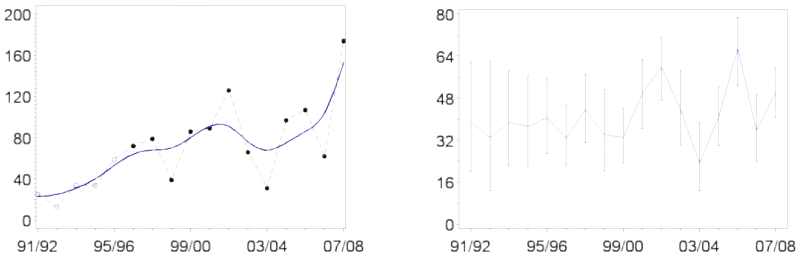
Appendix B, Figure B.22291. Continued



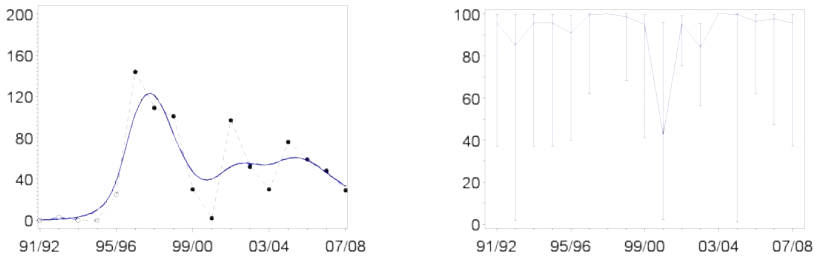
Appendix B, Figure B.22291. Continued

Walland Marsh

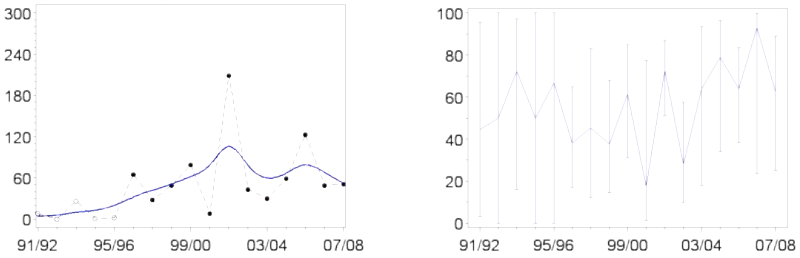
Mute Swan



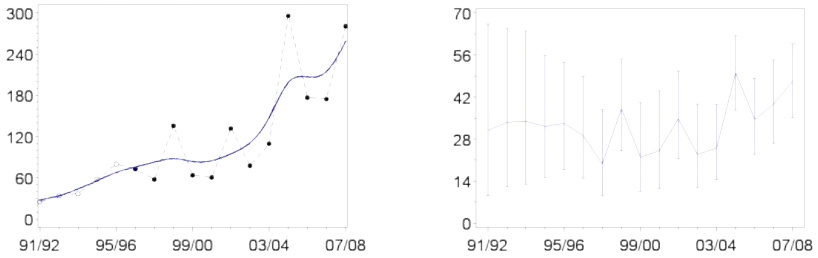
Bewick's Swan



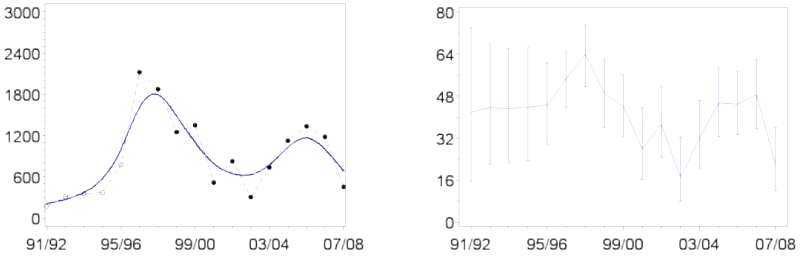
European White-fronted Goose



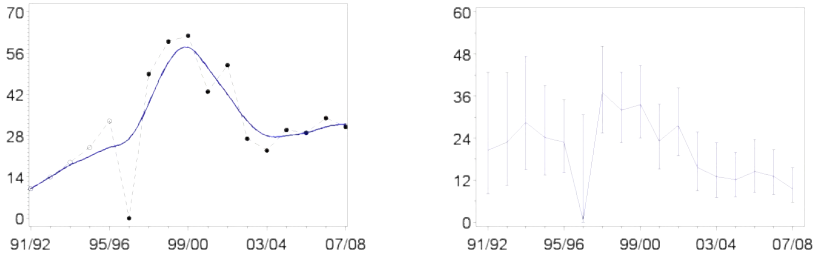
Greylag Goose



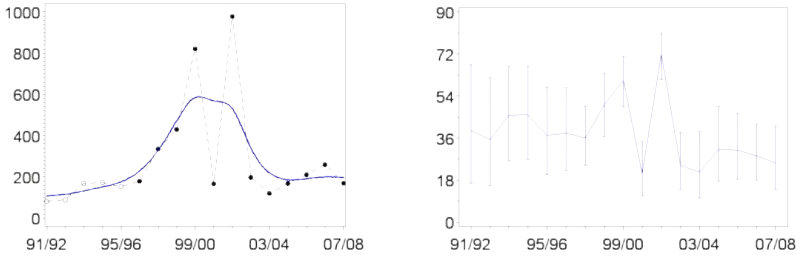
Wigeon



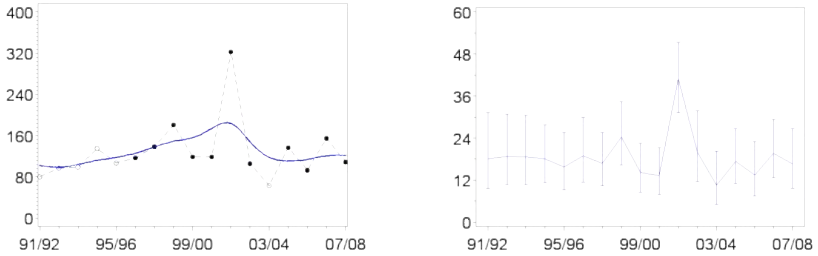
Gadwall



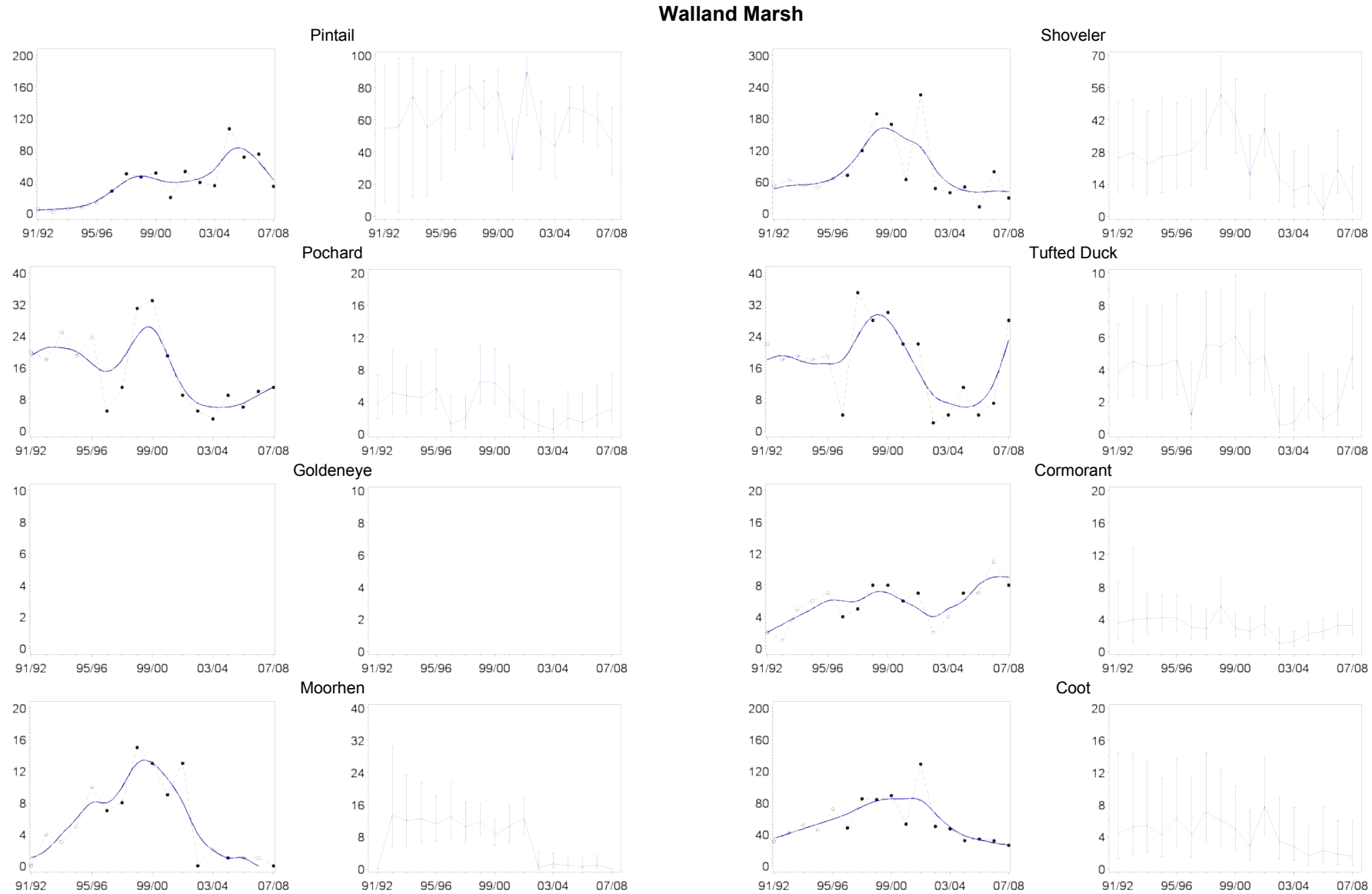
Teal



Mallard

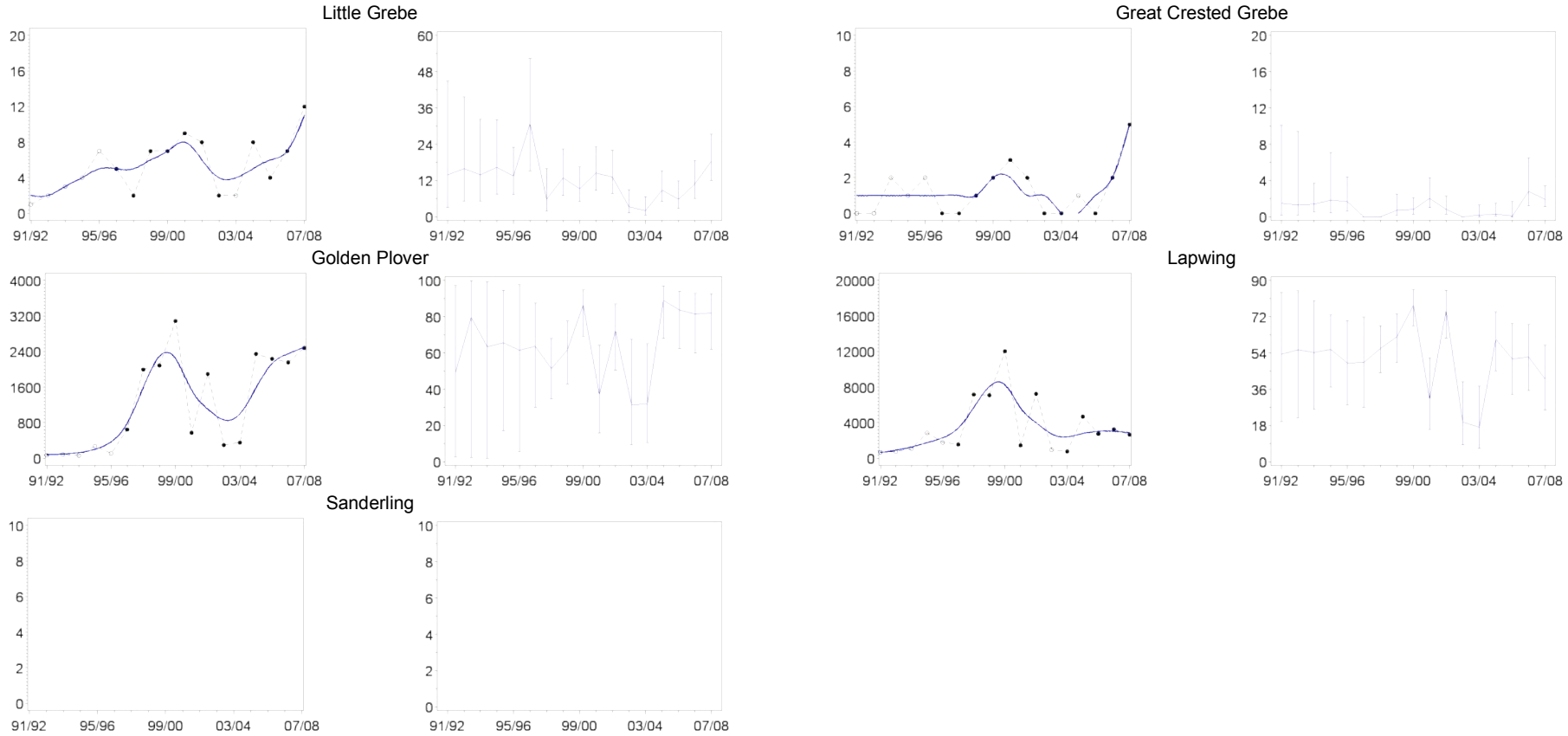


Appendix B, Figure B.22381. Population trends of each species in sector 22381 (Walland Marsh) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.22381. Continued

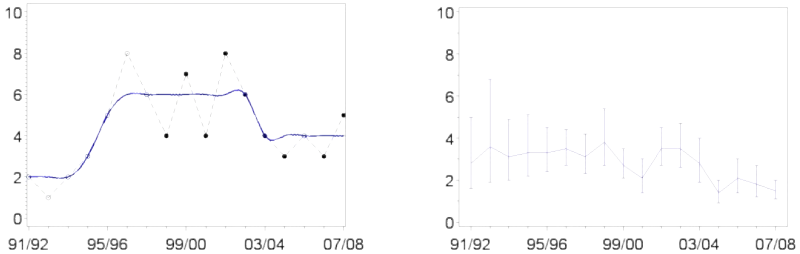
Walland Marsh



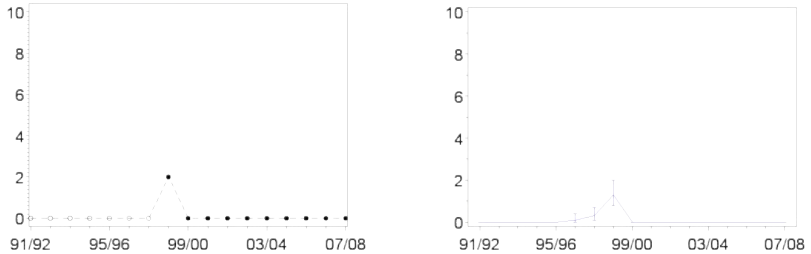
Appendix B, Figure B.22381. Continued

Fairfield SSSI

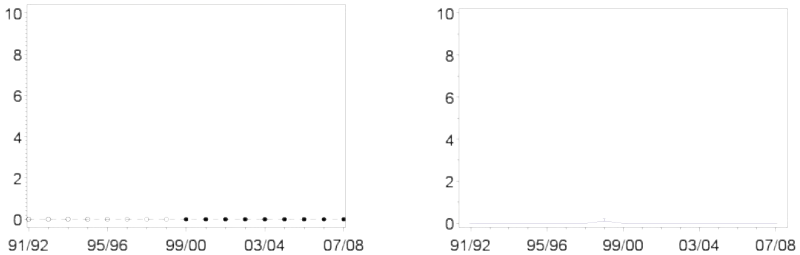
Mute Swan



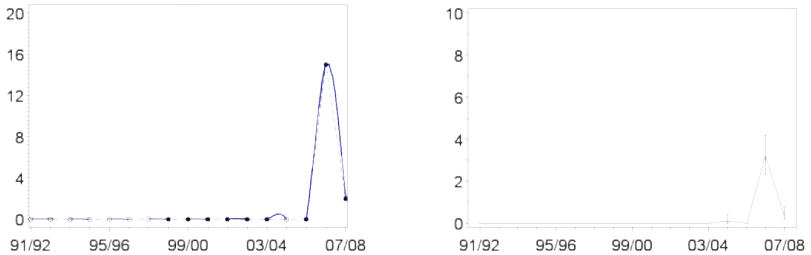
Bewick's Swan



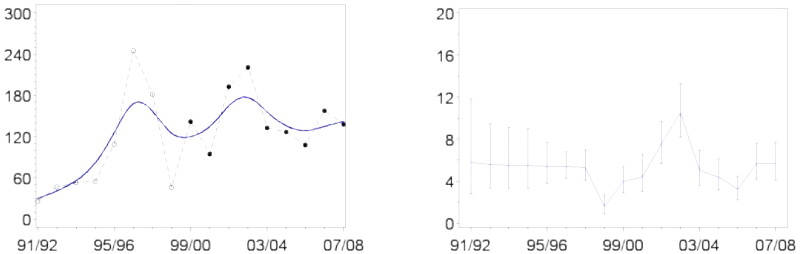
European White-fronted Goose



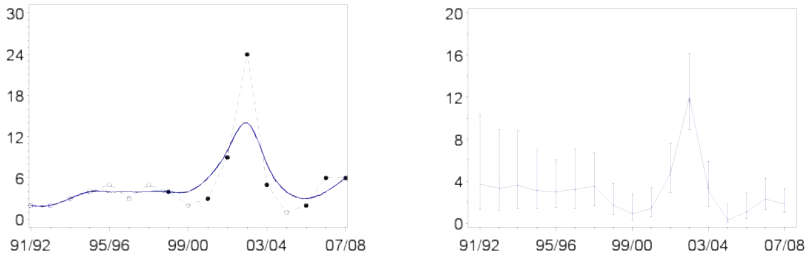
Greylag Goose



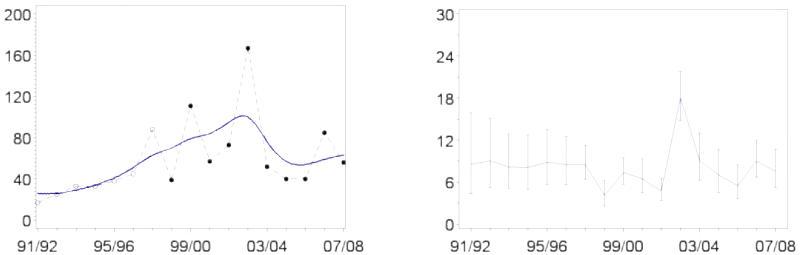
Wigeon



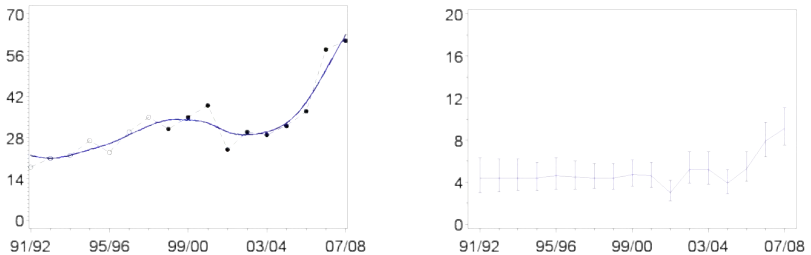
Gadwall



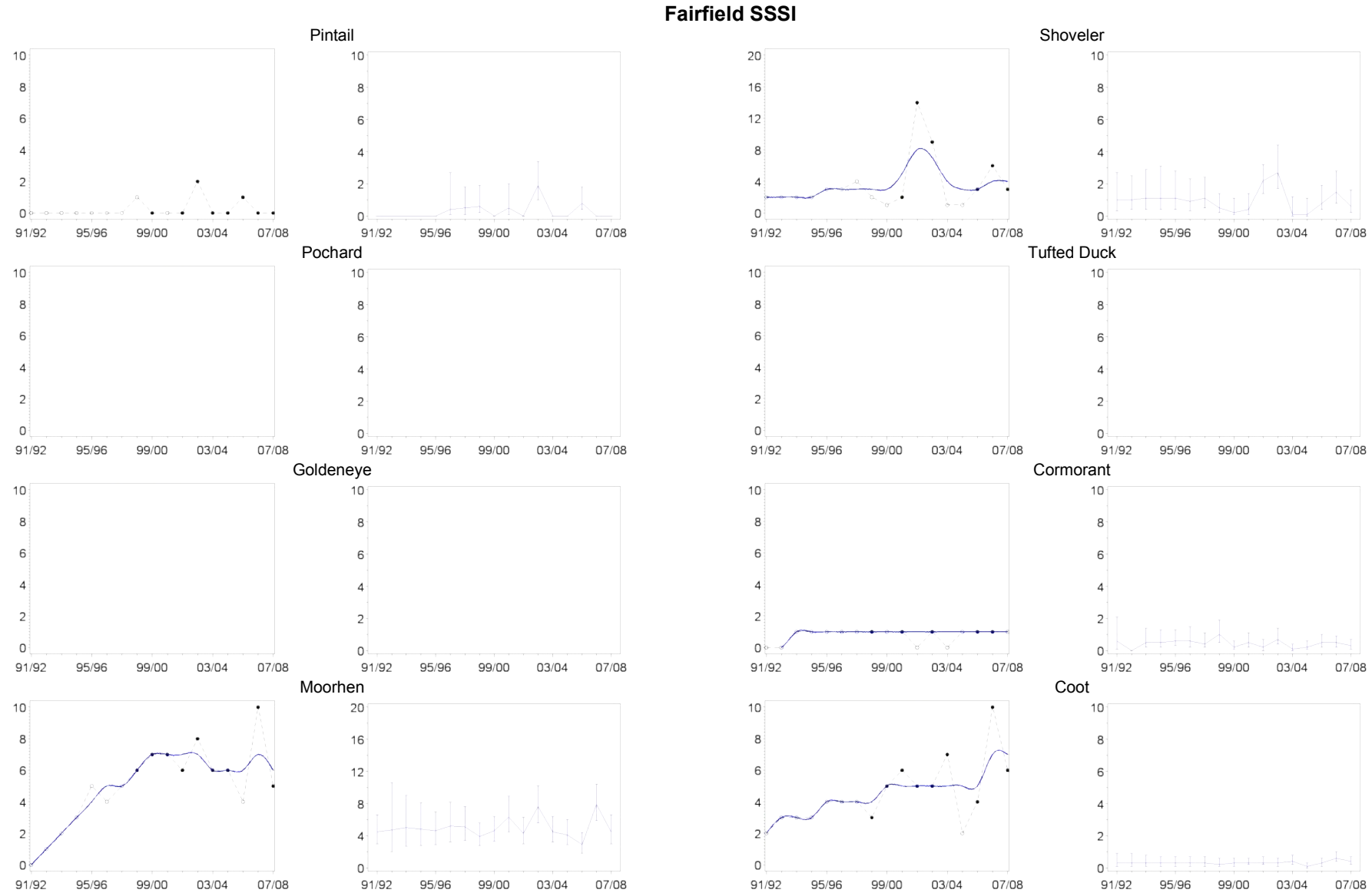
Teal



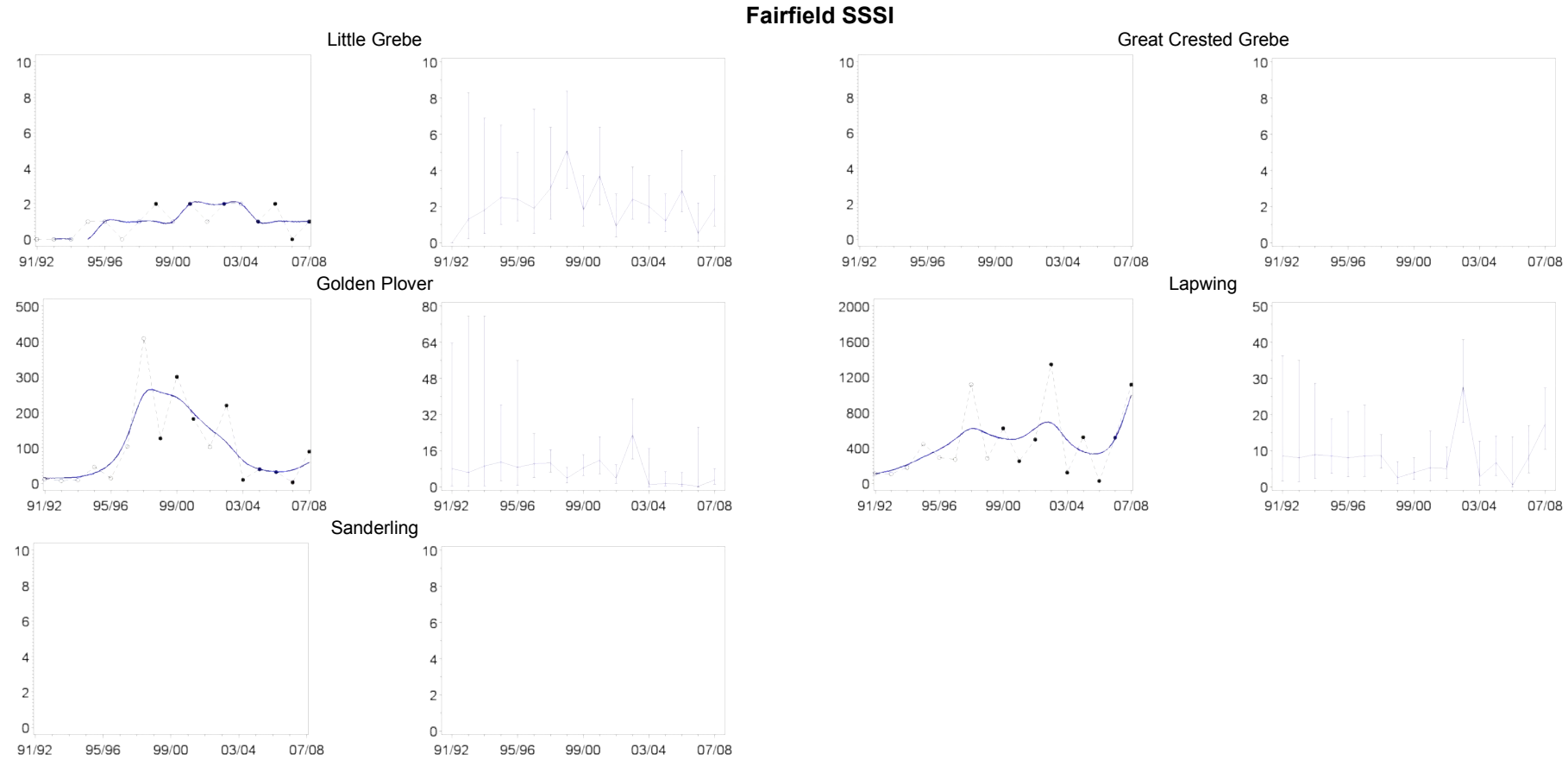
Mallard



Appendix B, Figure B.22396. Population trends of each species in sector 22396 (Fairfield SSSI) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



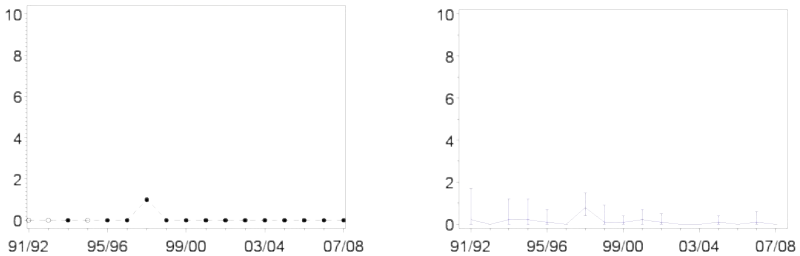
Appendix B, Figure B.22396. Continued



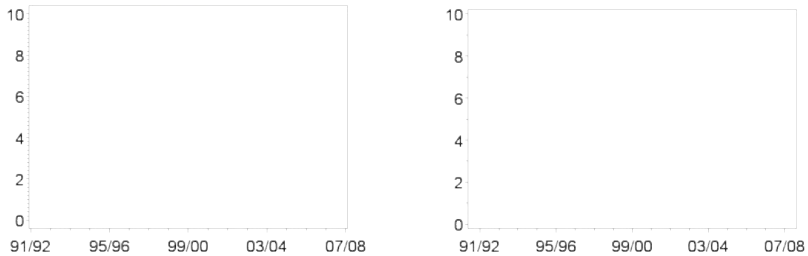
Appendix B, Figure B.22396. Continued

Lade Sands

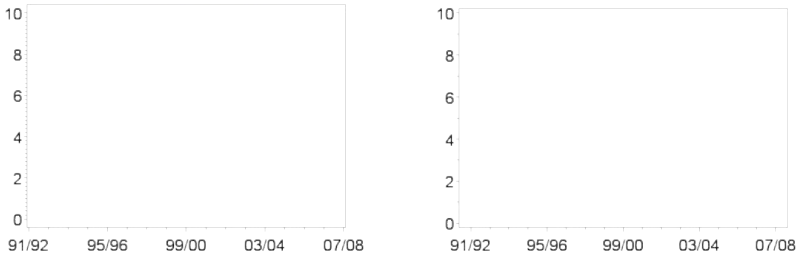
Mute Swan



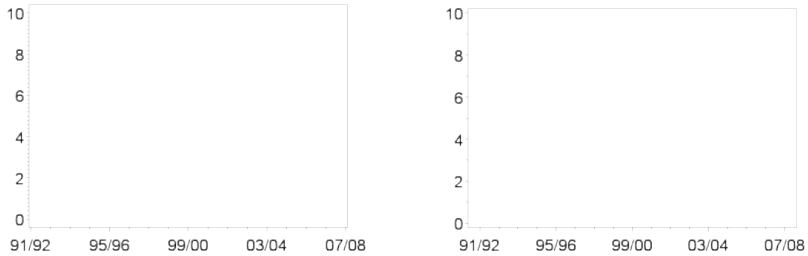
Bewick's Swan



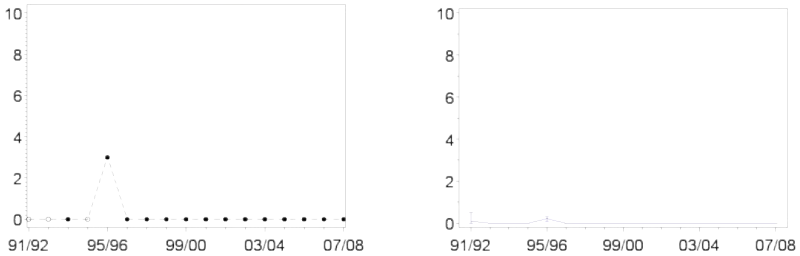
European White-fronted Goose



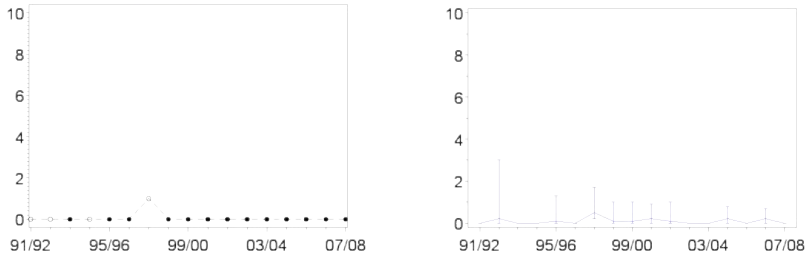
Greylag Goose



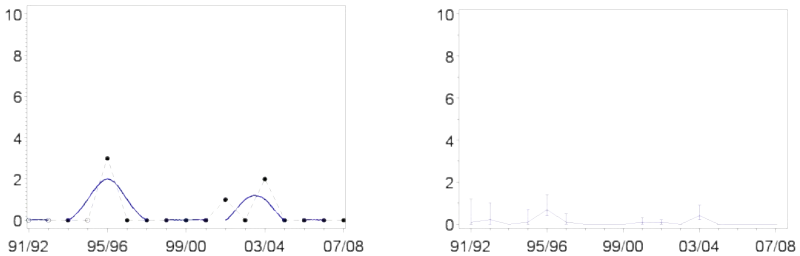
Wigeon



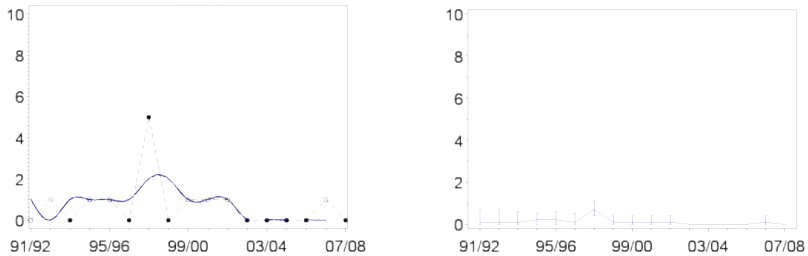
Gadwall



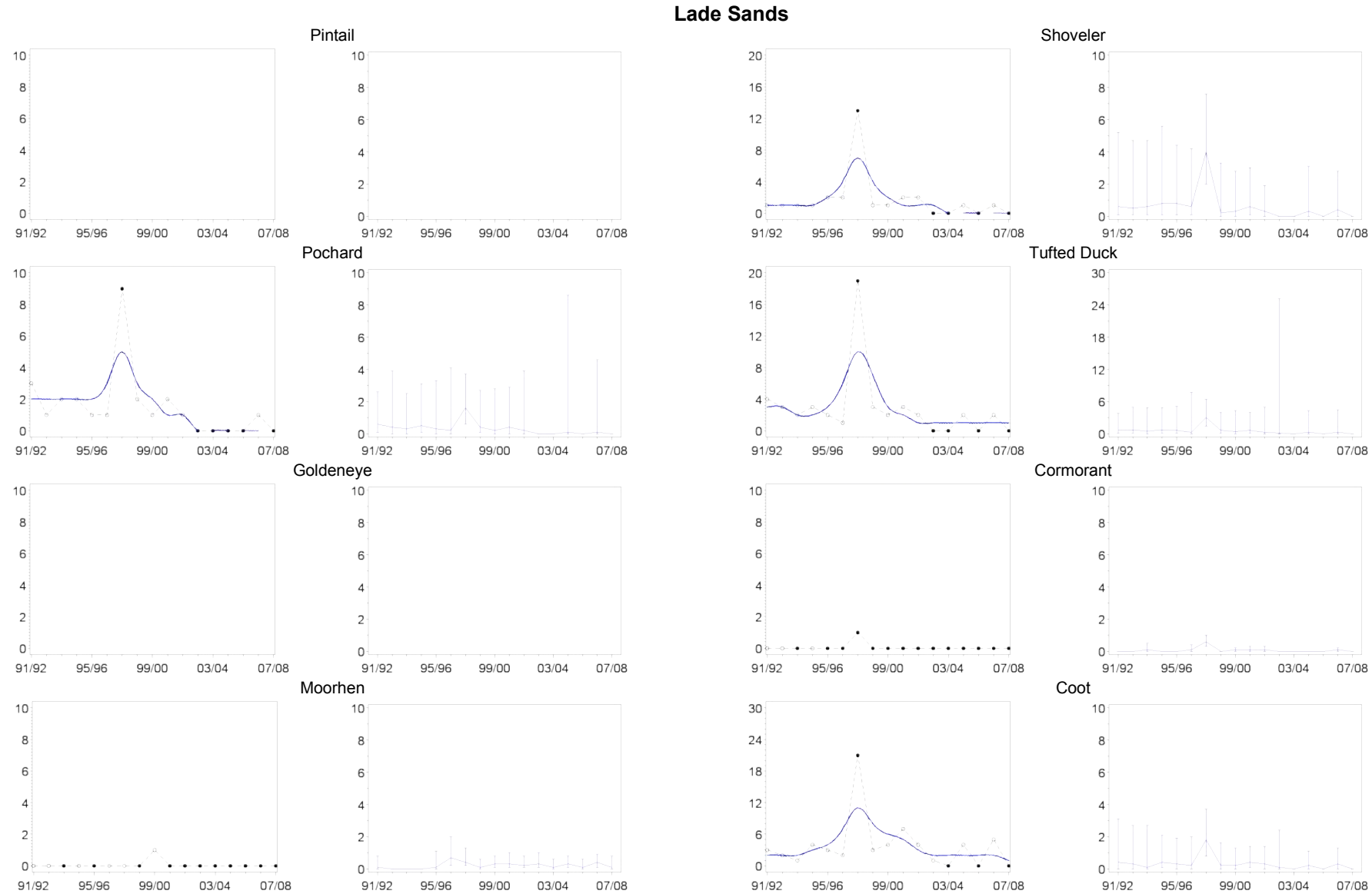
Teal



Mallard

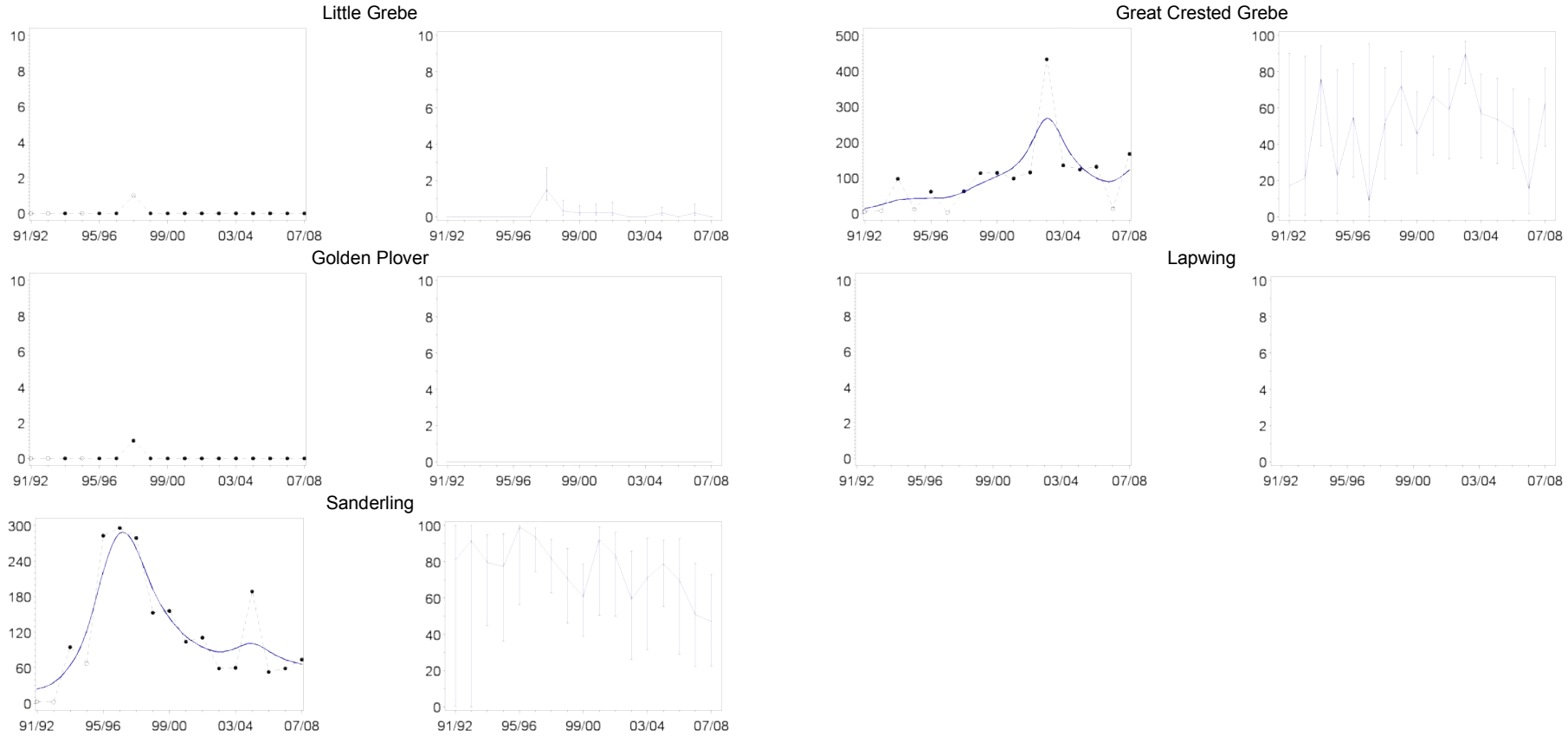


Appendix B, Figure B.22403. Population trends of each species in sector 22403 (Lade Sands) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.22403. Continued

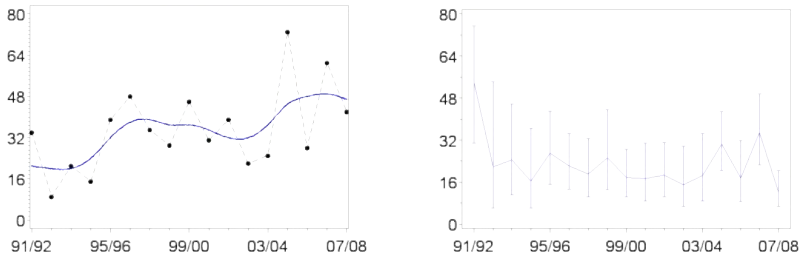
Lade Sands



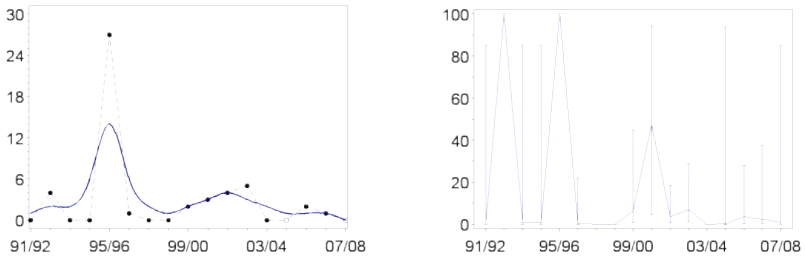
Appendix B, Figure B.22403. Continued

Dungeness RSPB Reserve

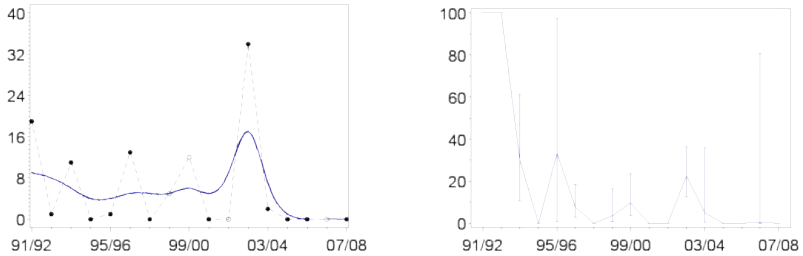
Mute Swan



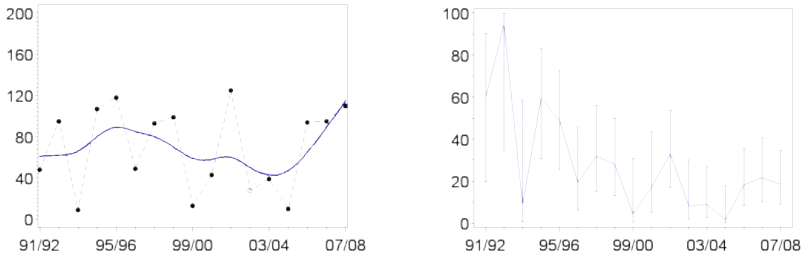
Bewick's Swan



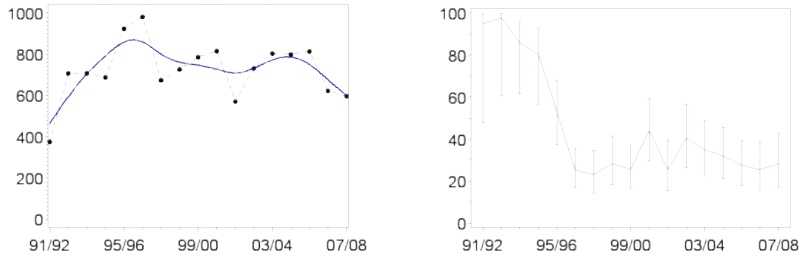
European White-fronted Goose



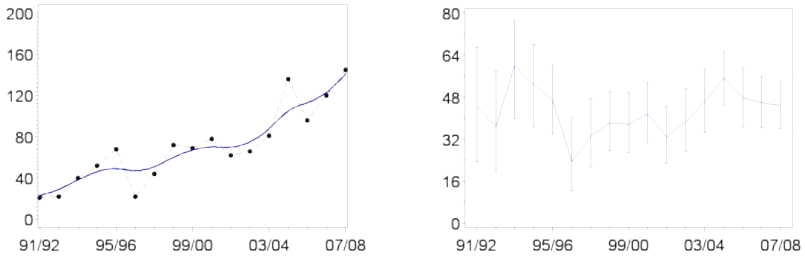
Greylag Goose



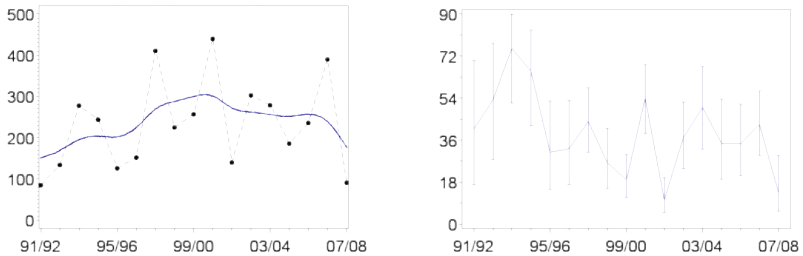
Wigeon



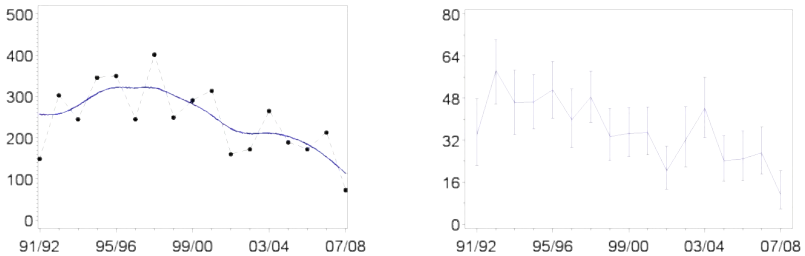
Gadwall



Teal



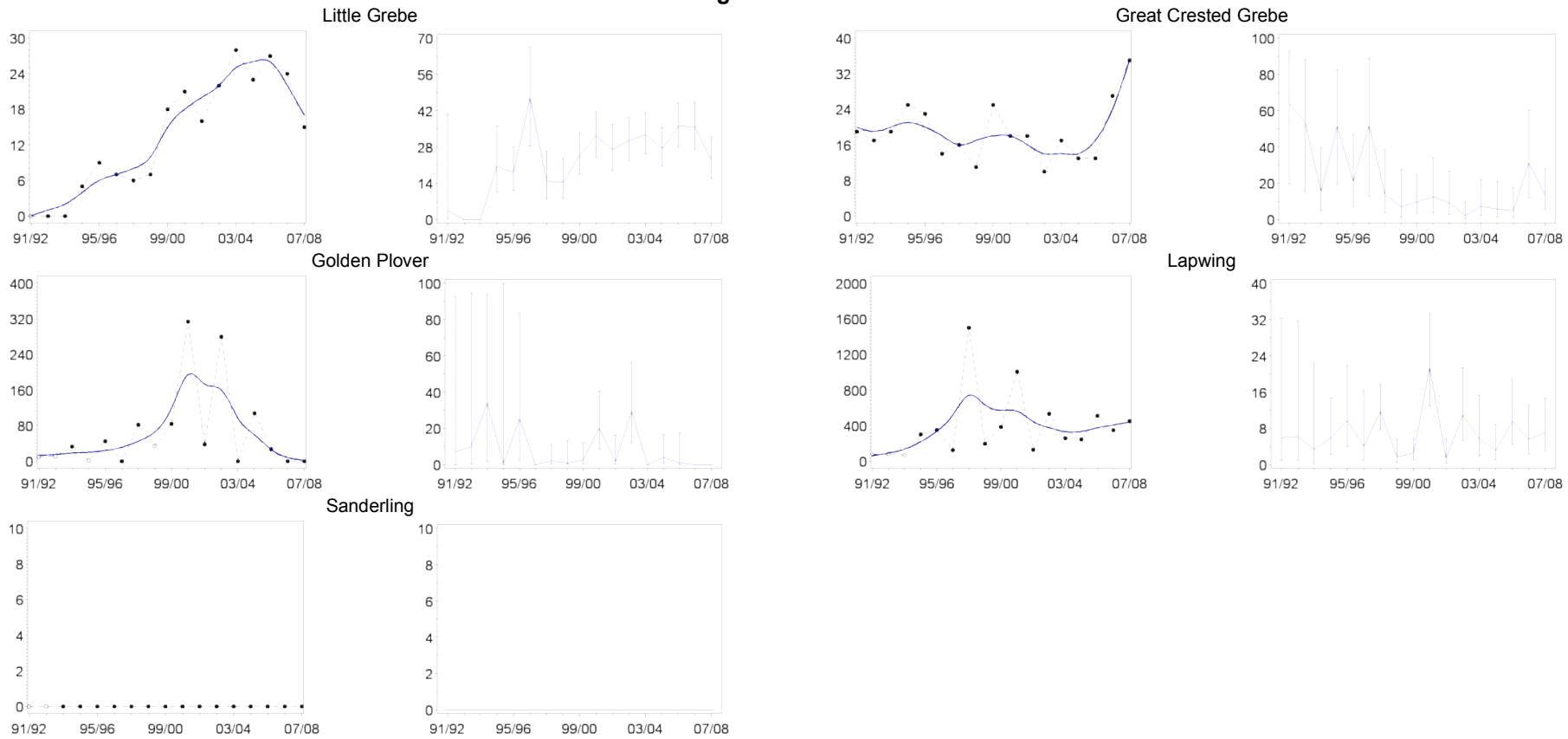
Mallard



Appendix B, Figure B.22791. Population trends of each species in sector 22791 (Dungeness RSPB Reserve) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).

Appendix B, Figure B.22791. Continued

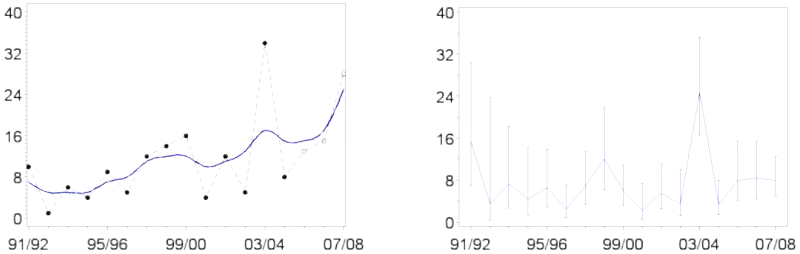
Dungeness RSPB Reserve



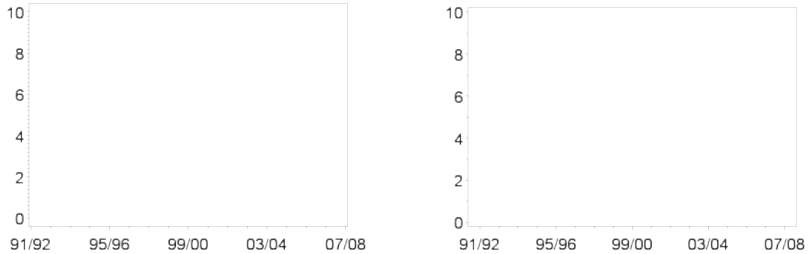
Appendix B, Figure B.22791. Continued

Scotney Point

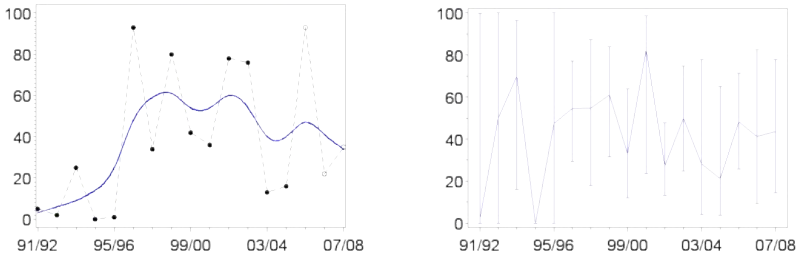
Mute Swan



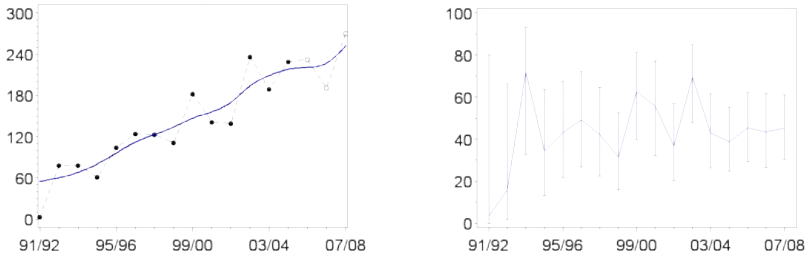
Bewick's Swan



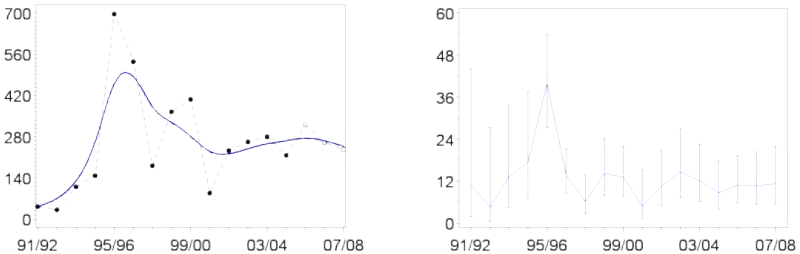
European White-fronted Goose



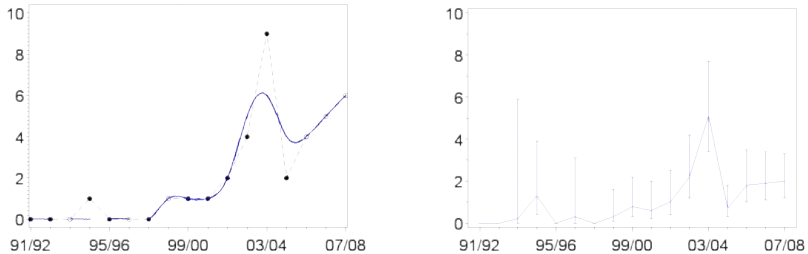
Greylag Goose



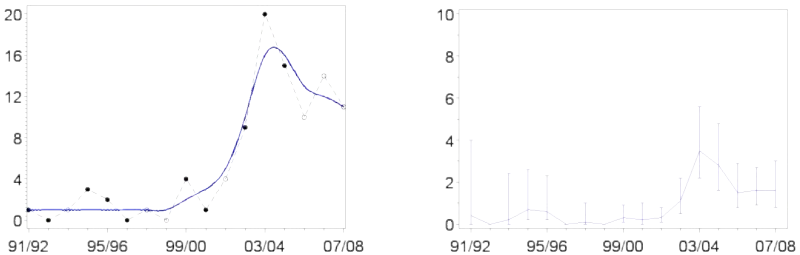
Wigeon



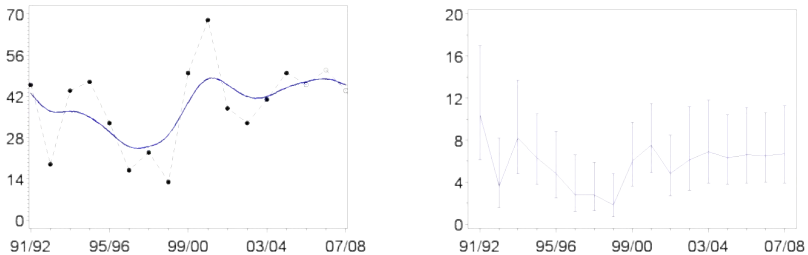
Gadwall



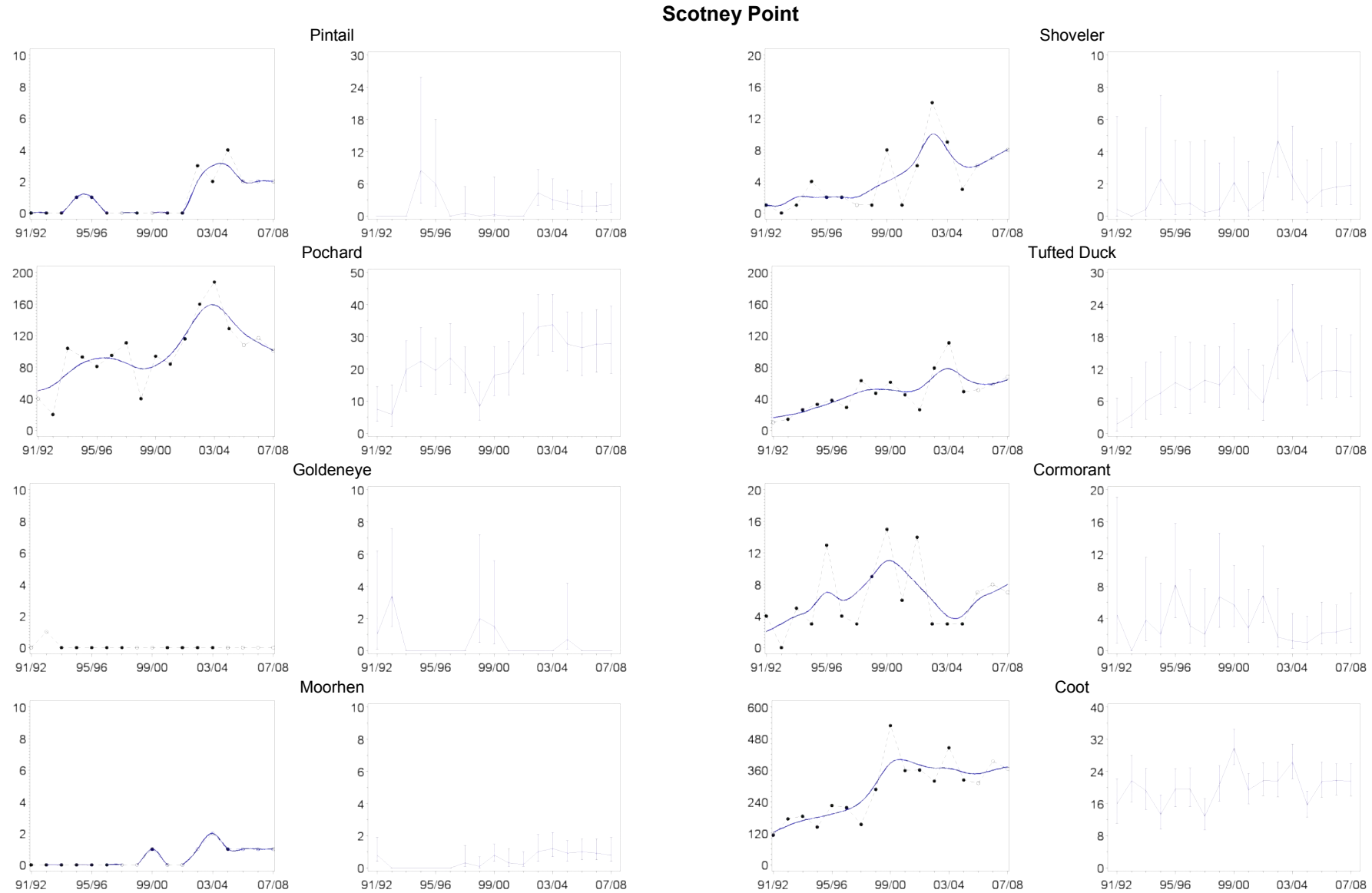
Teal



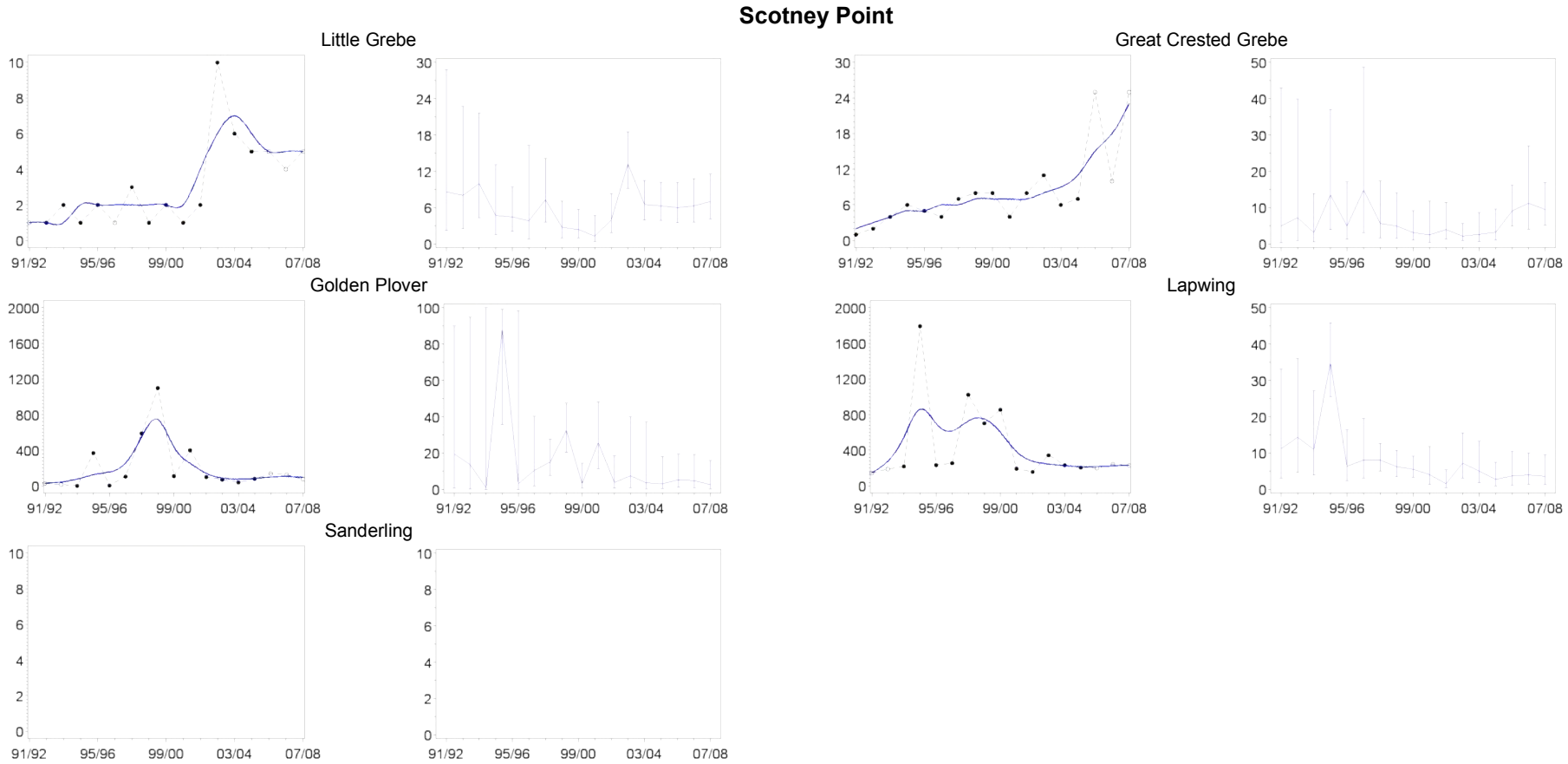
Mallard



Appendix B, Figure B.22792. Population trends of each species in sector 22792 (Scotney Pit) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



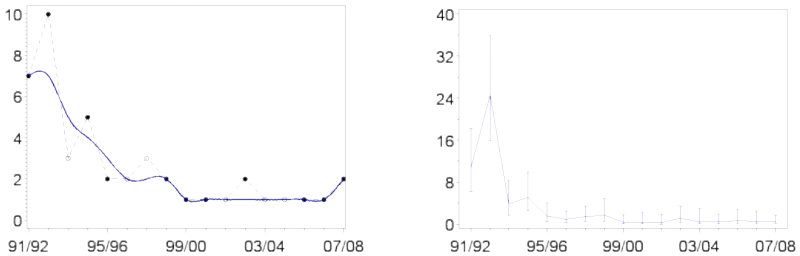
Appendix B, Figure B.22792. Continued



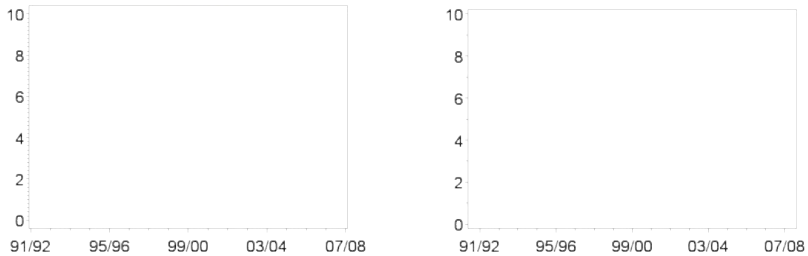
Appendix B, Figure B.22792. Continued

Lade Pit

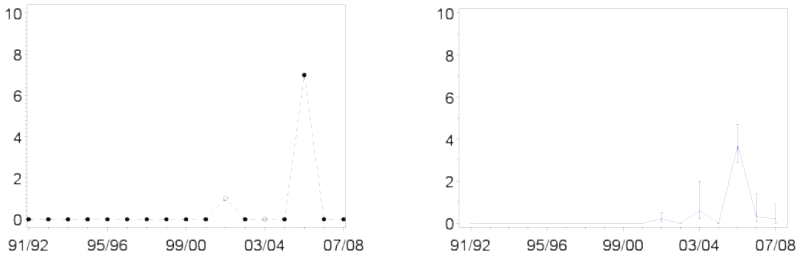
Mute Swan



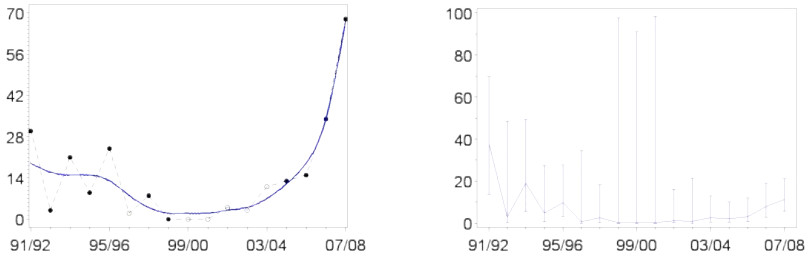
Bewick's Swan



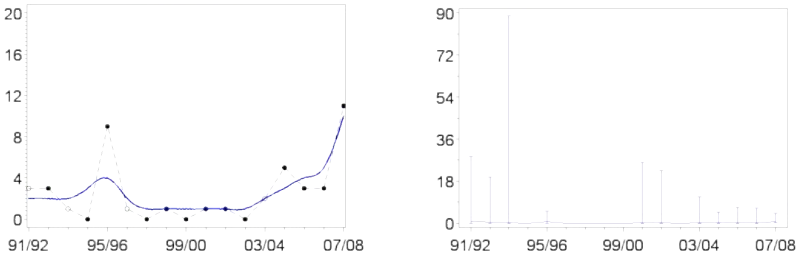
European White-fronted Goose



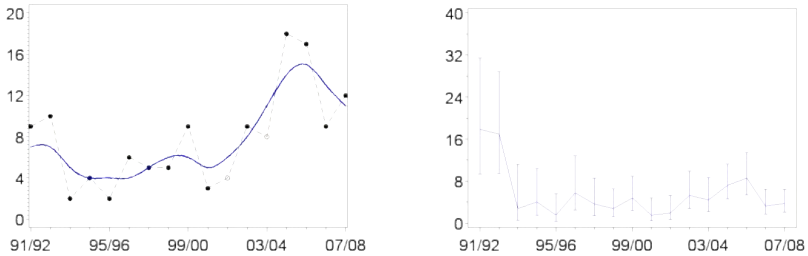
Greylag Goose



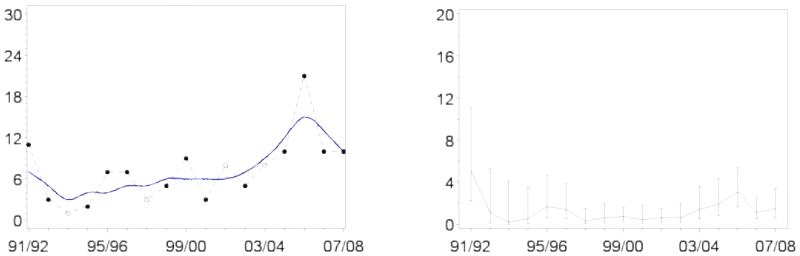
Wigeon



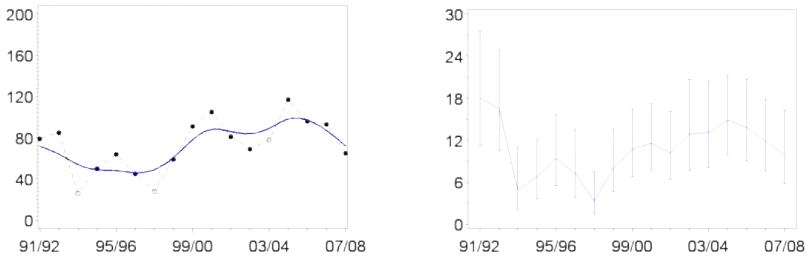
Gadwall



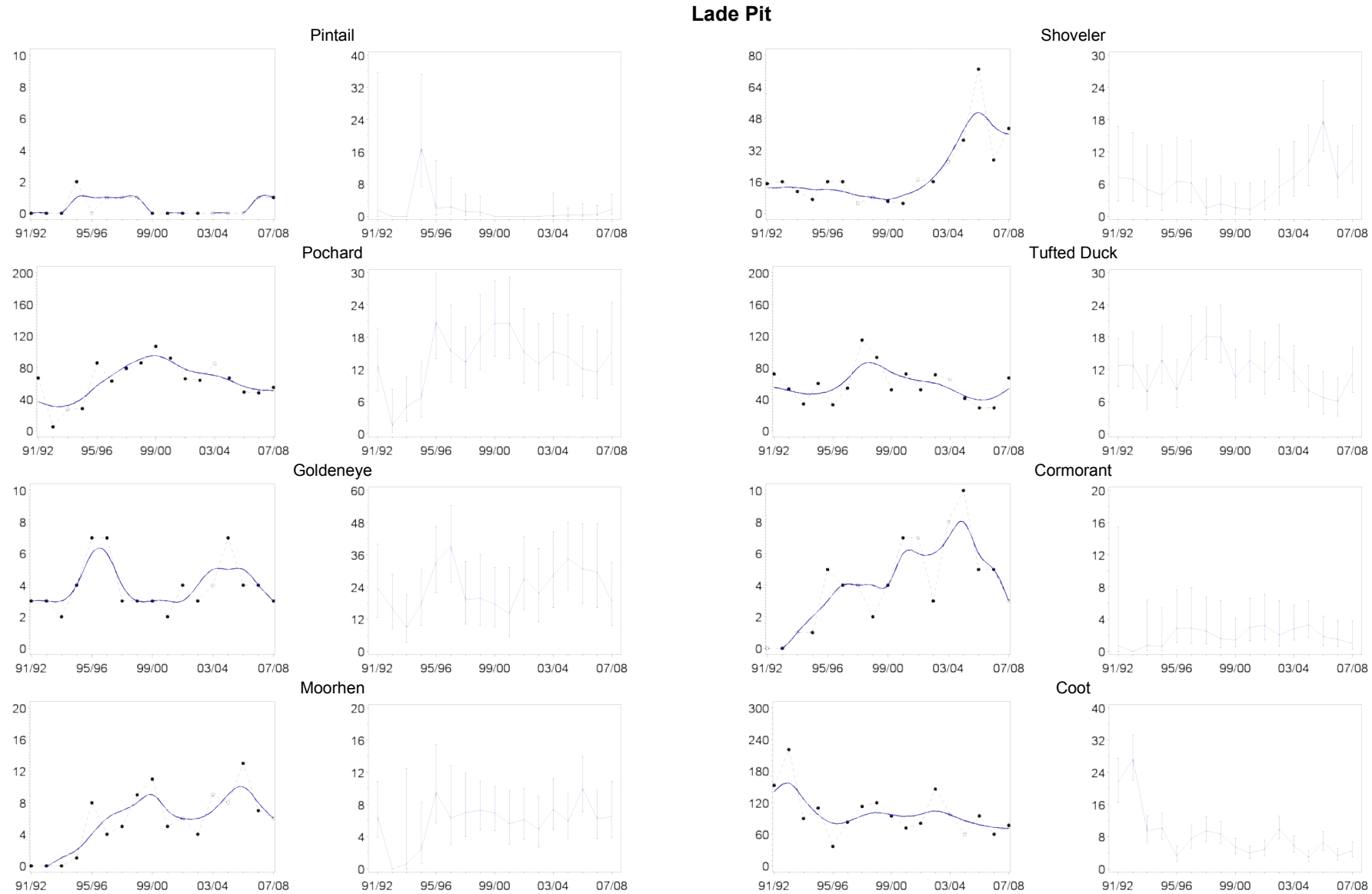
Teal



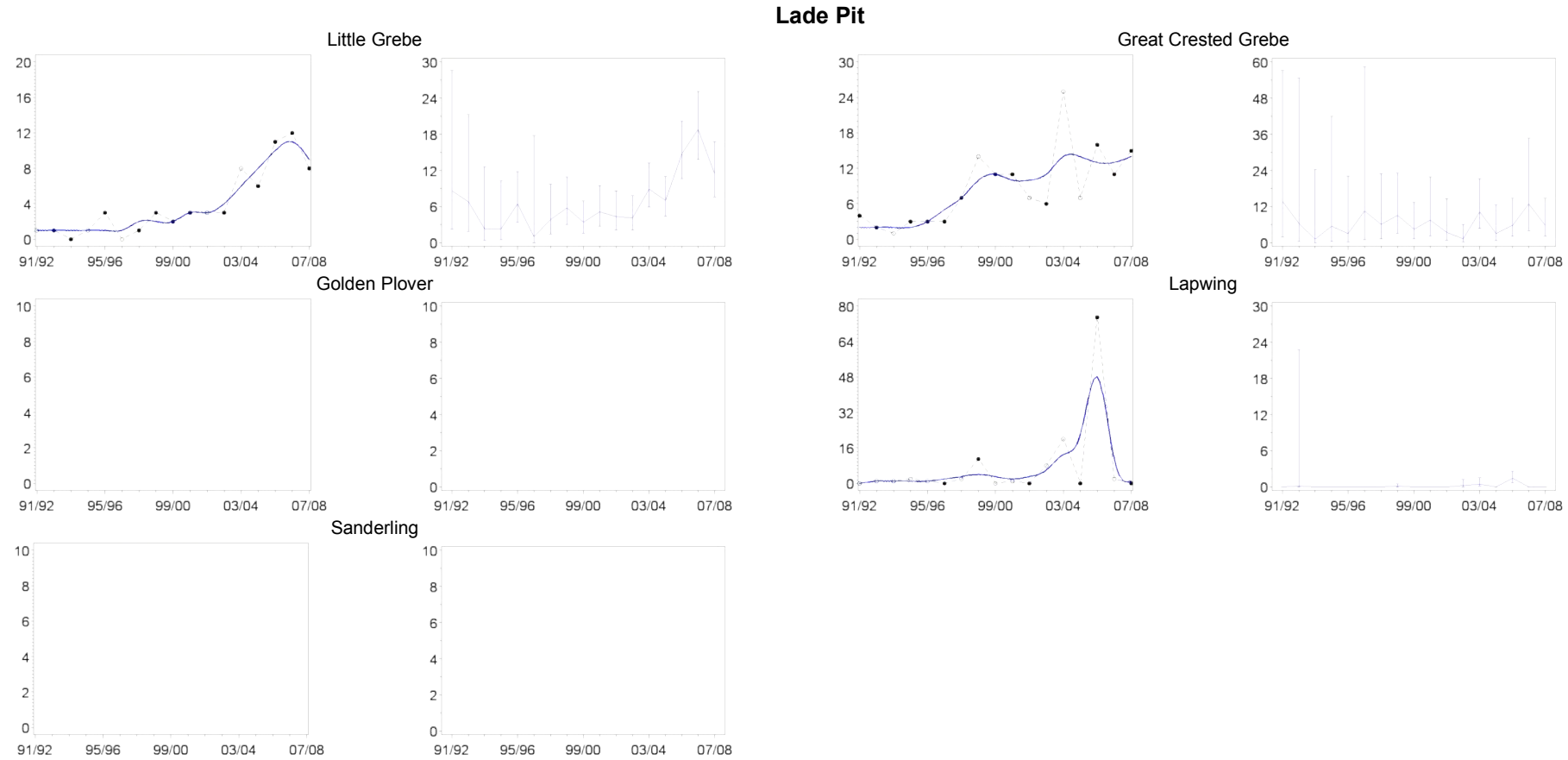
Mallard



Appendix B, Figure B.22793. Population trends of each species in sector 22793 (Lade Pit) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



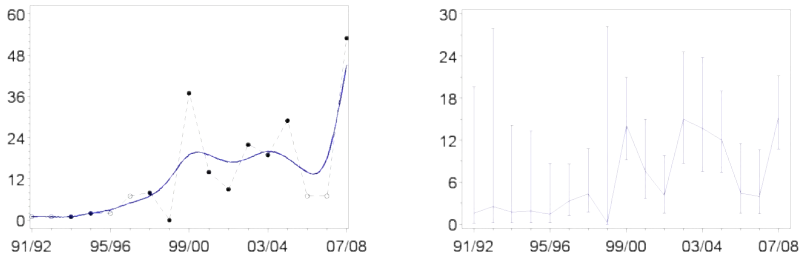
Appendix B, Figure B.22793. Continued



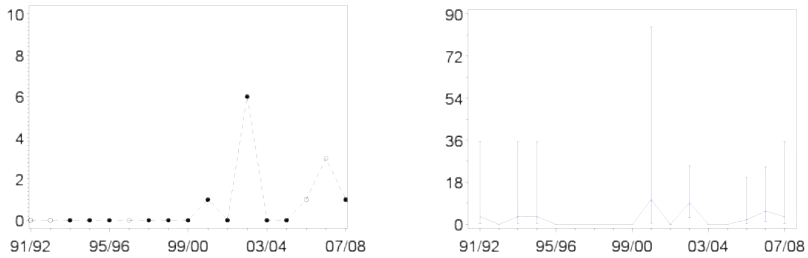
Appendix B, Figure B.22793. Continued

Bretts Pits

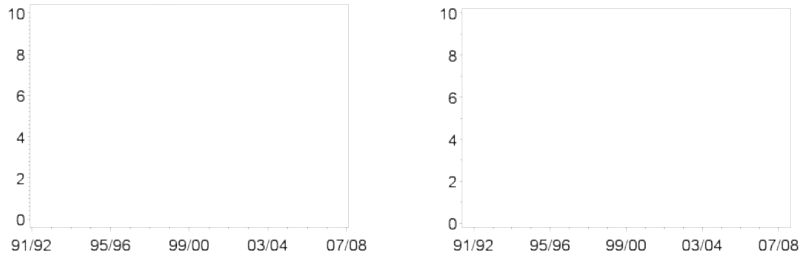
Mute Swan



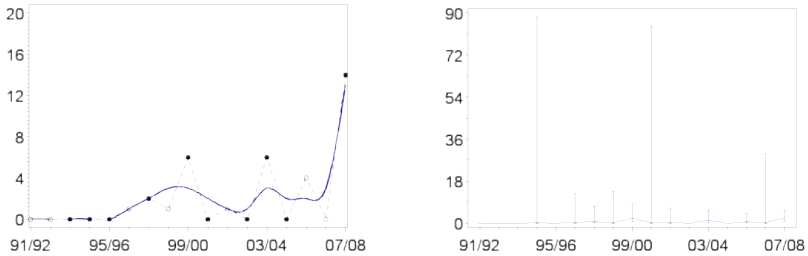
Bewick's Swan



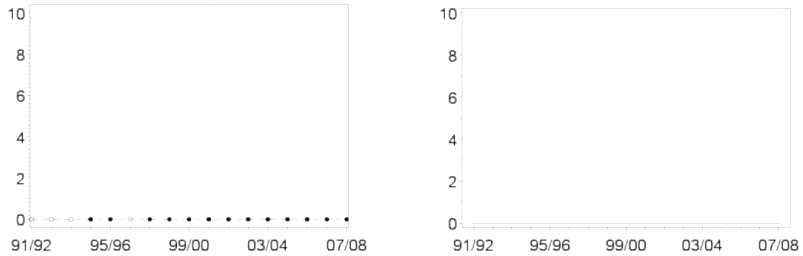
European White-fronted Goose



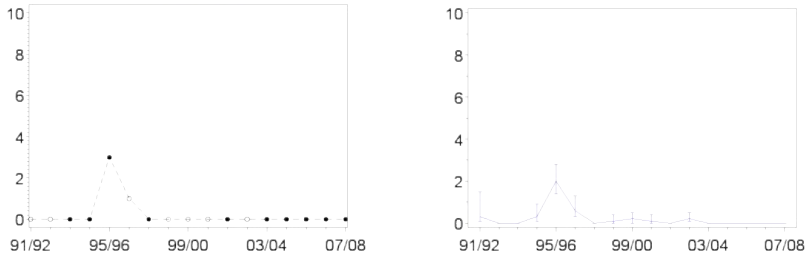
Greylag Goose



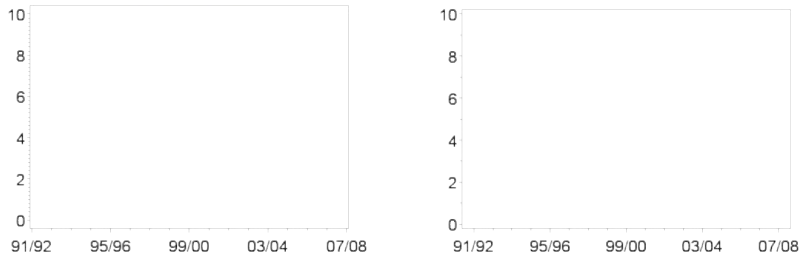
Wigeon



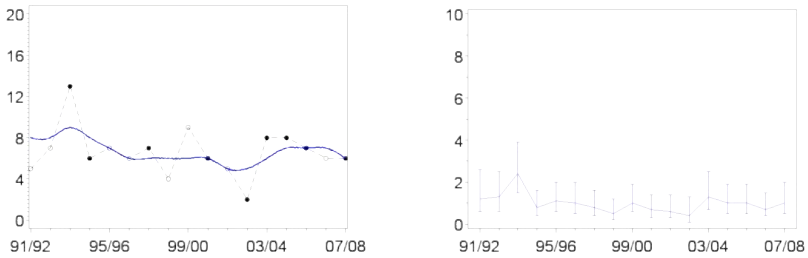
Gadwall



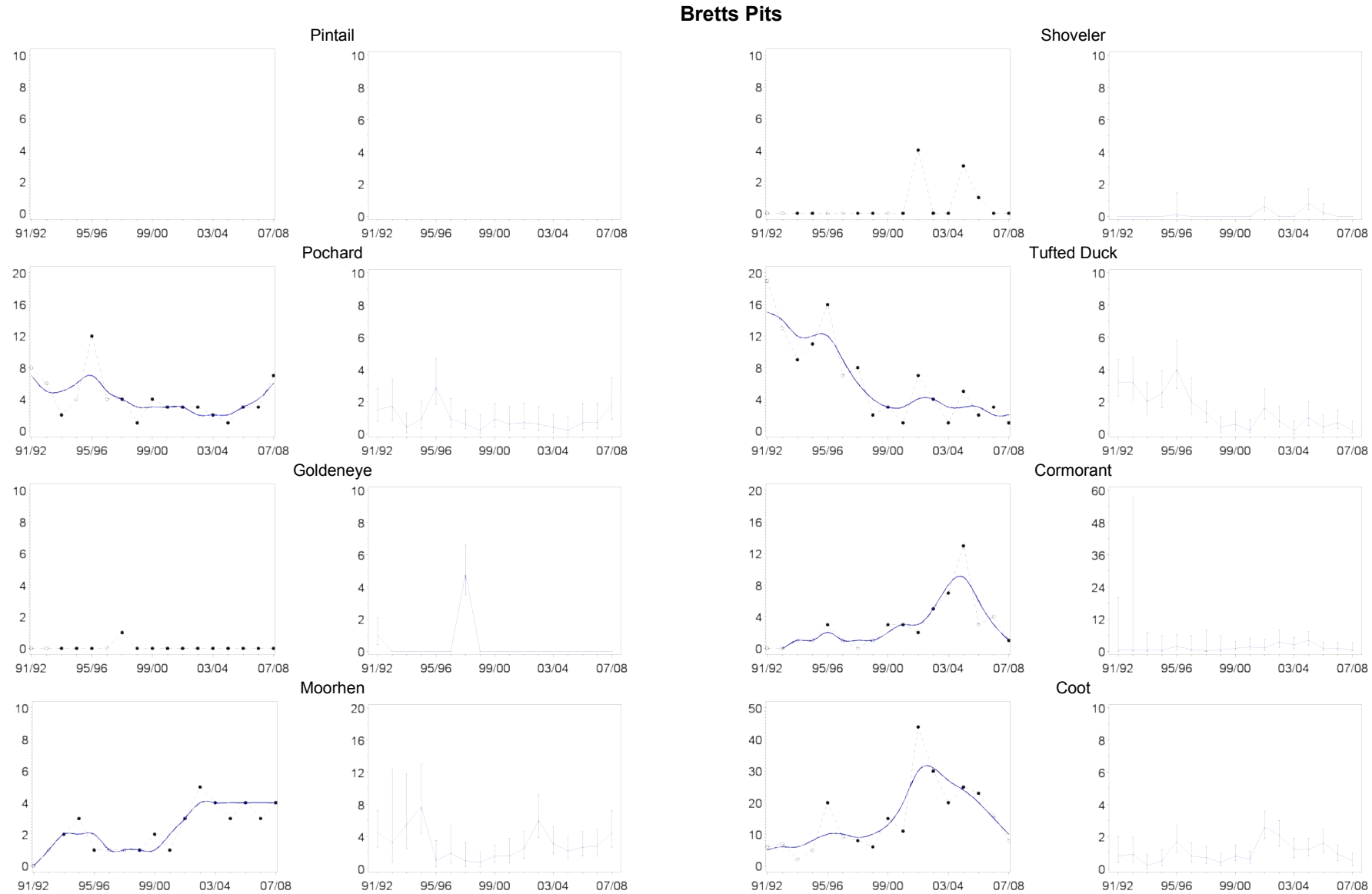
Teal



Mallard

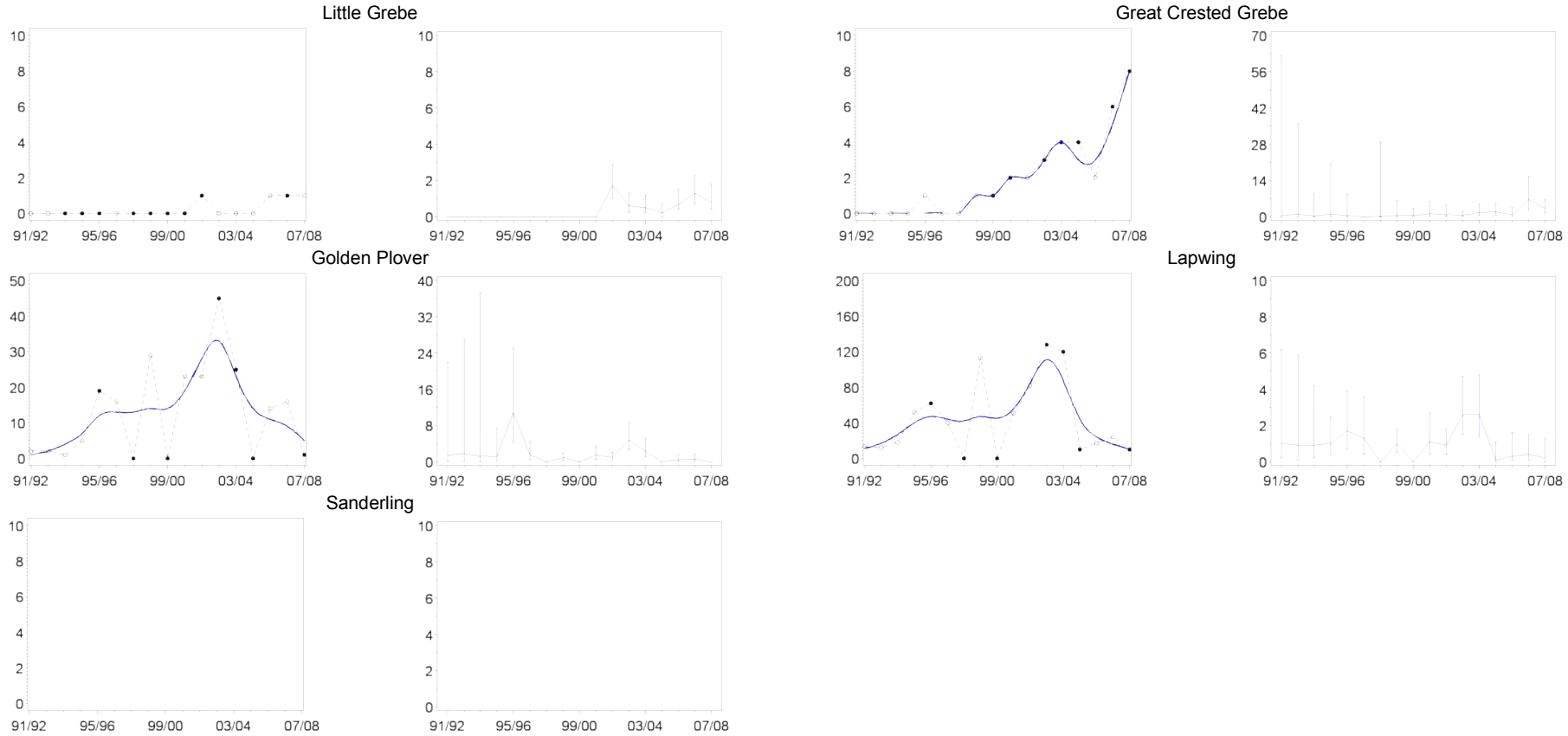


Appendix B, Figure B.22794. Population trends of each species in sector 22794 (Bretts Pits) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



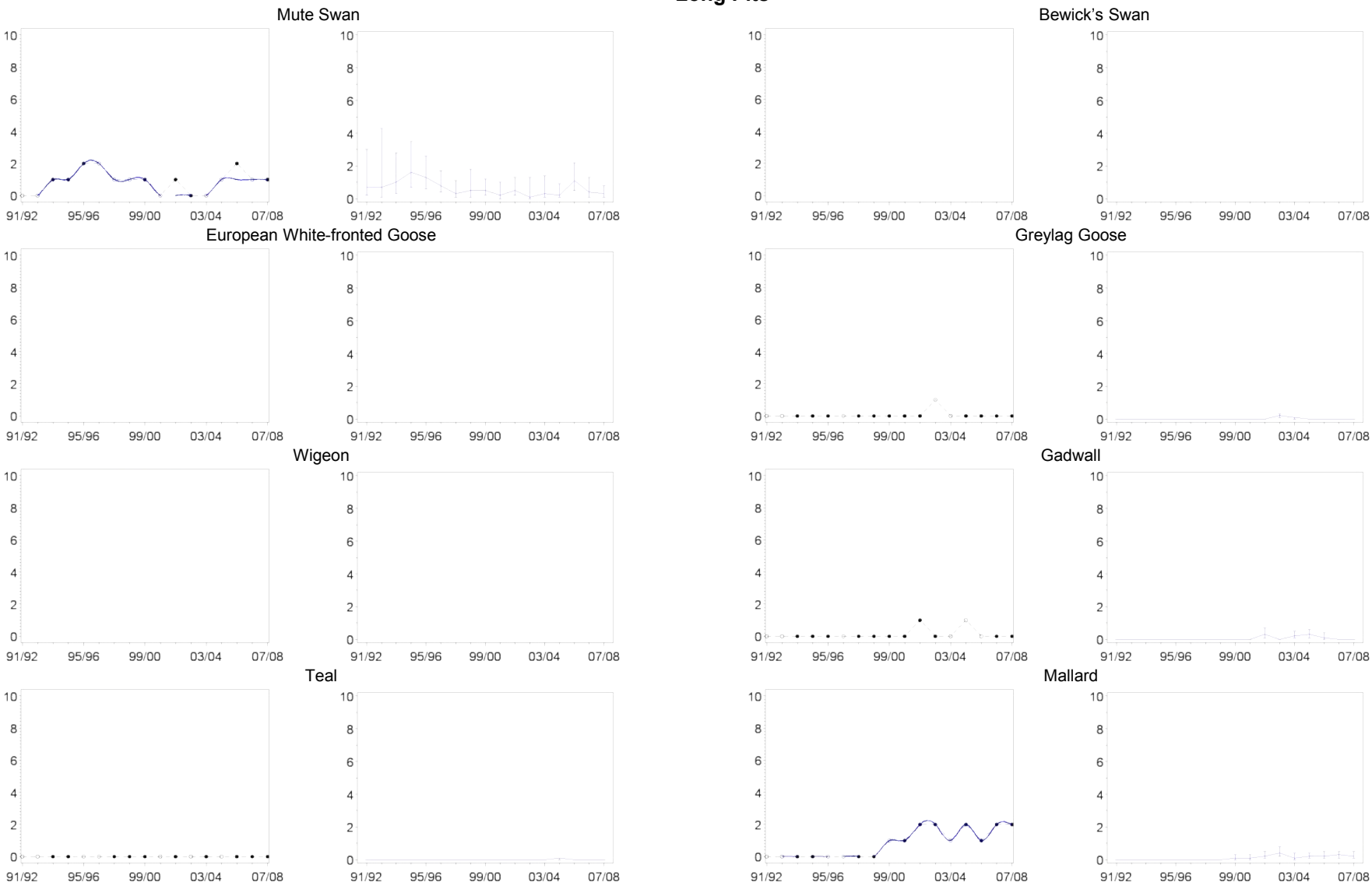
Appendix B, Figure B.22794. Continued

Bretts Pits

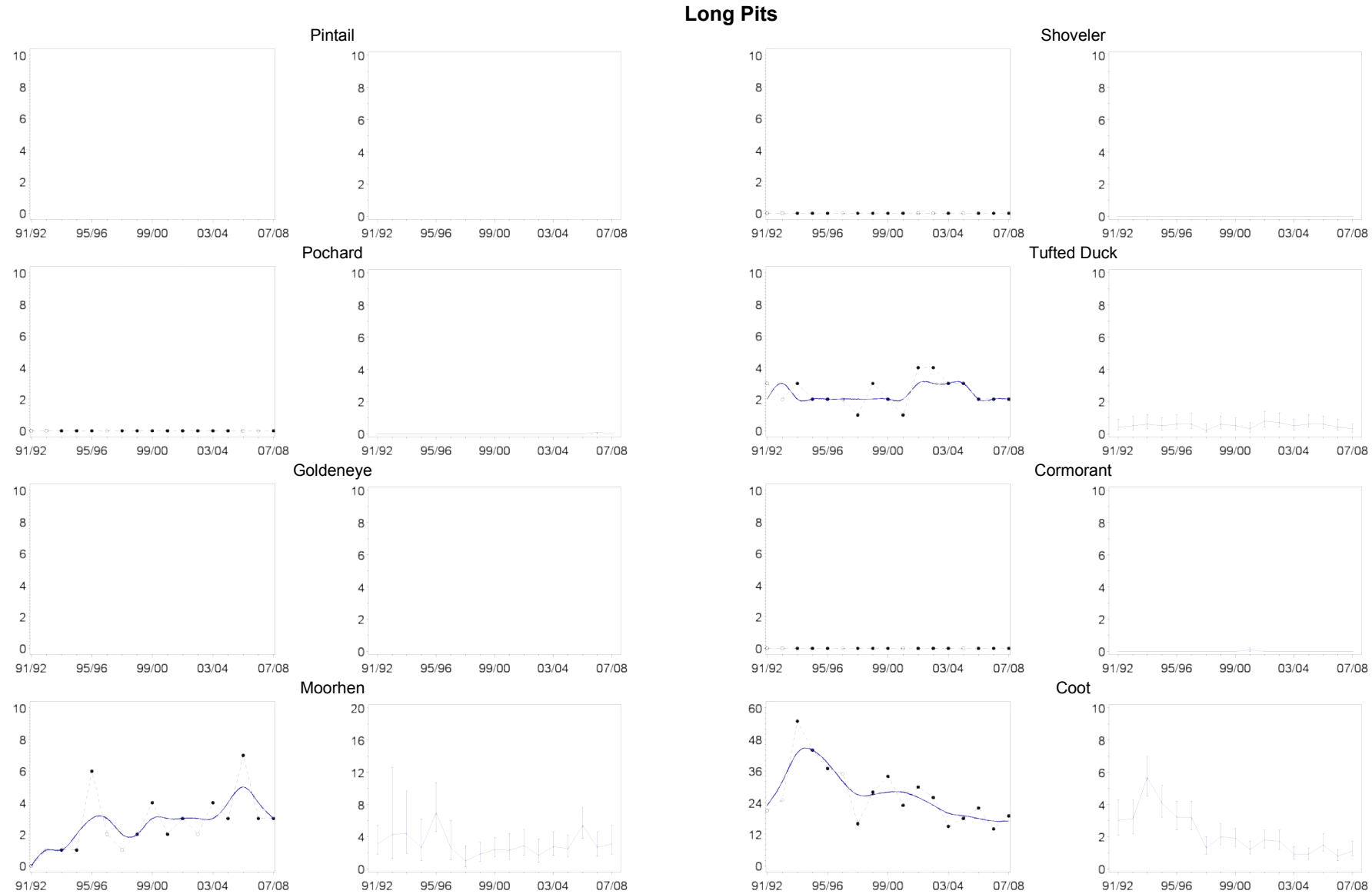


Appendix B, Figure B.22794. Continued

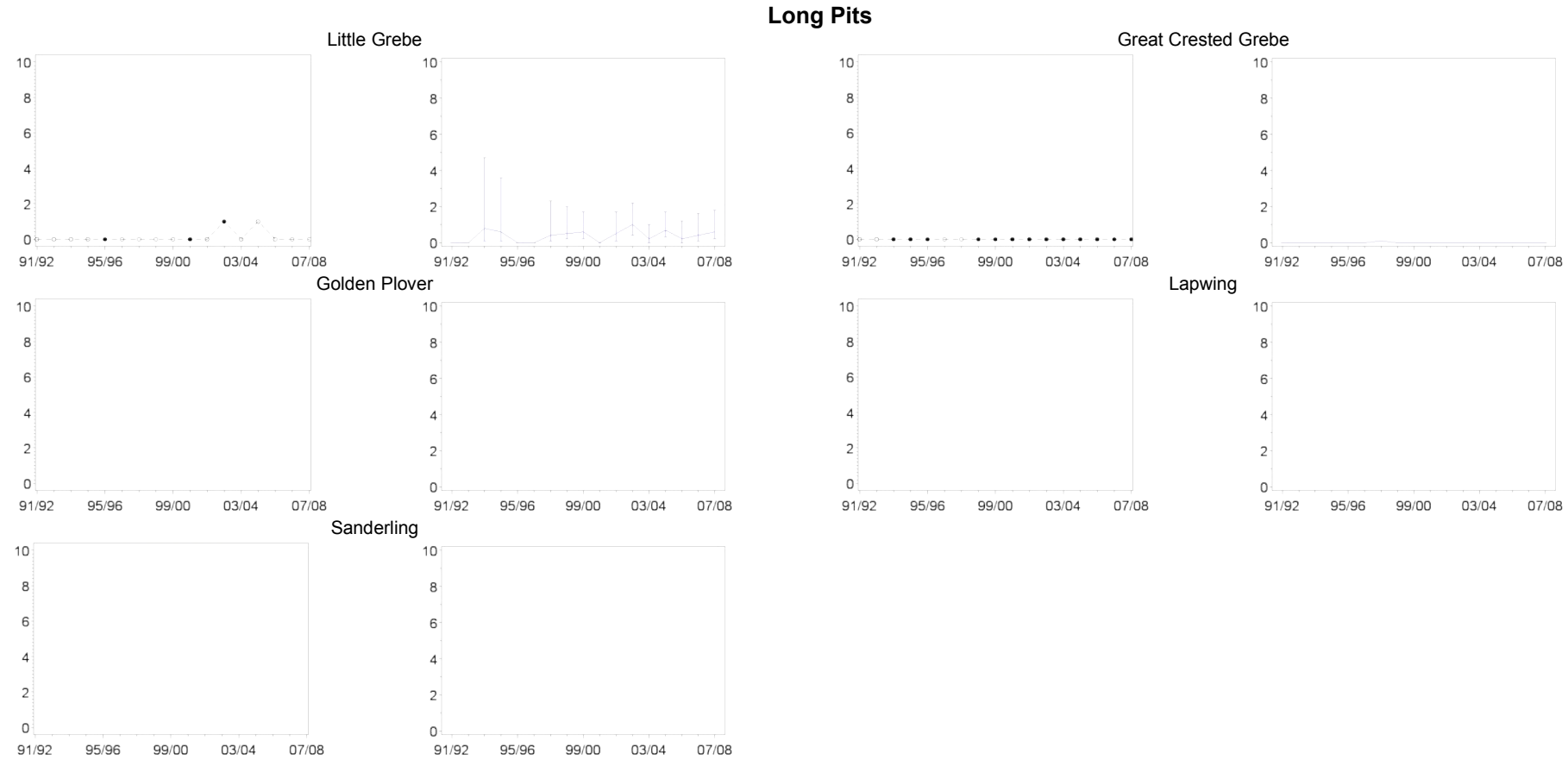
Long Pits


Mute Swan
Bewick's Swan
European White-fronted Goose
Greylag Goose
Wigeon
Gadwall
Teal
Mallard
0
2
4
6
8
10
91/92
95/96
99/00
03/04
07/08

Appendix B, Figure B.22795. Population trends of each species in sector 22795 (Long Pits) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



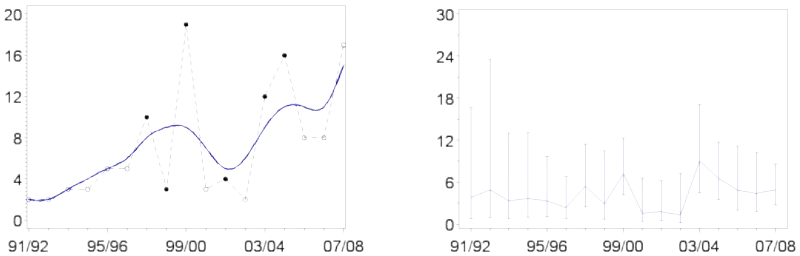
Appendix B, Figure B.22795. Continued



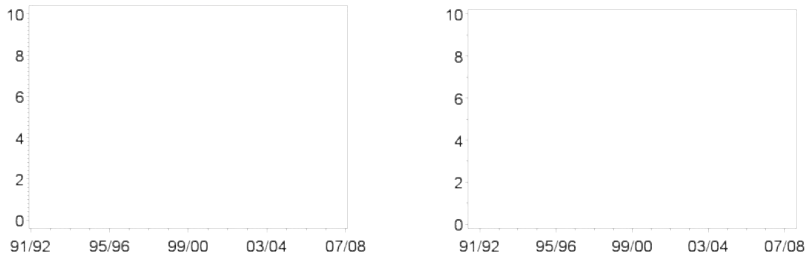
Appendix B, Figure B.22795. Continued

Lydd West GravelPits

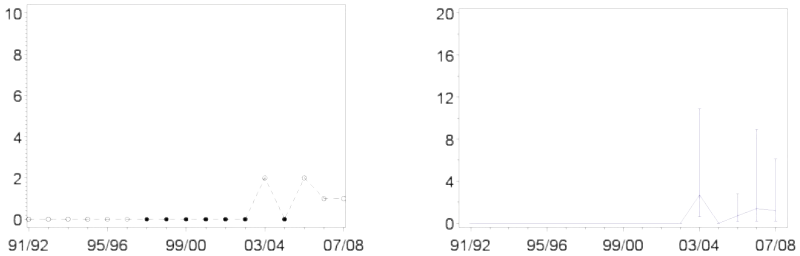
Mute Swan



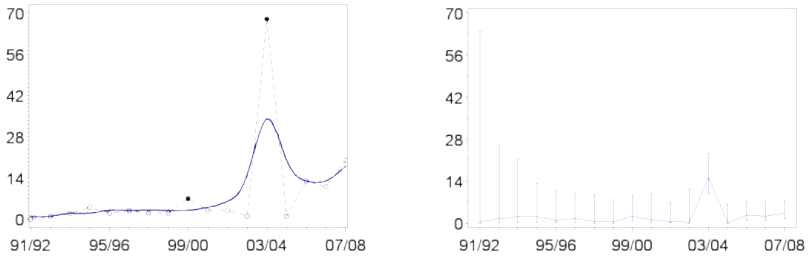
Bewick's Swan



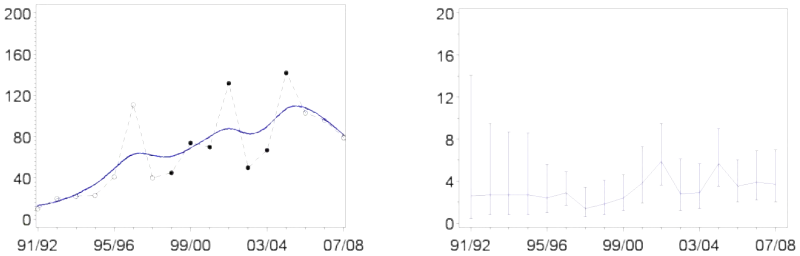
European White-fronted Goose



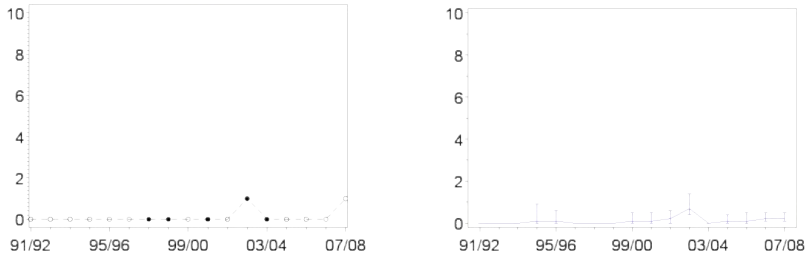
Greylag Goose



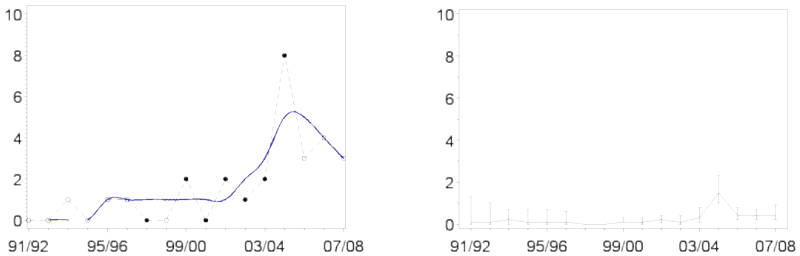
Wigeon



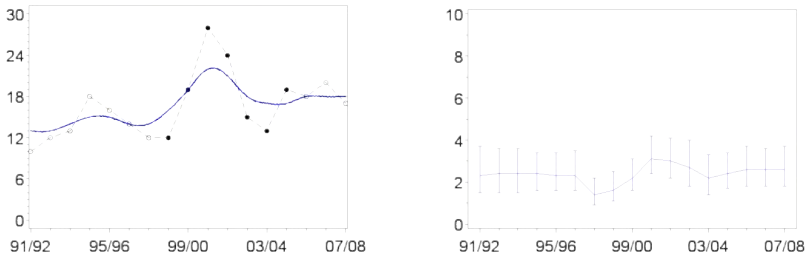
Gadwall



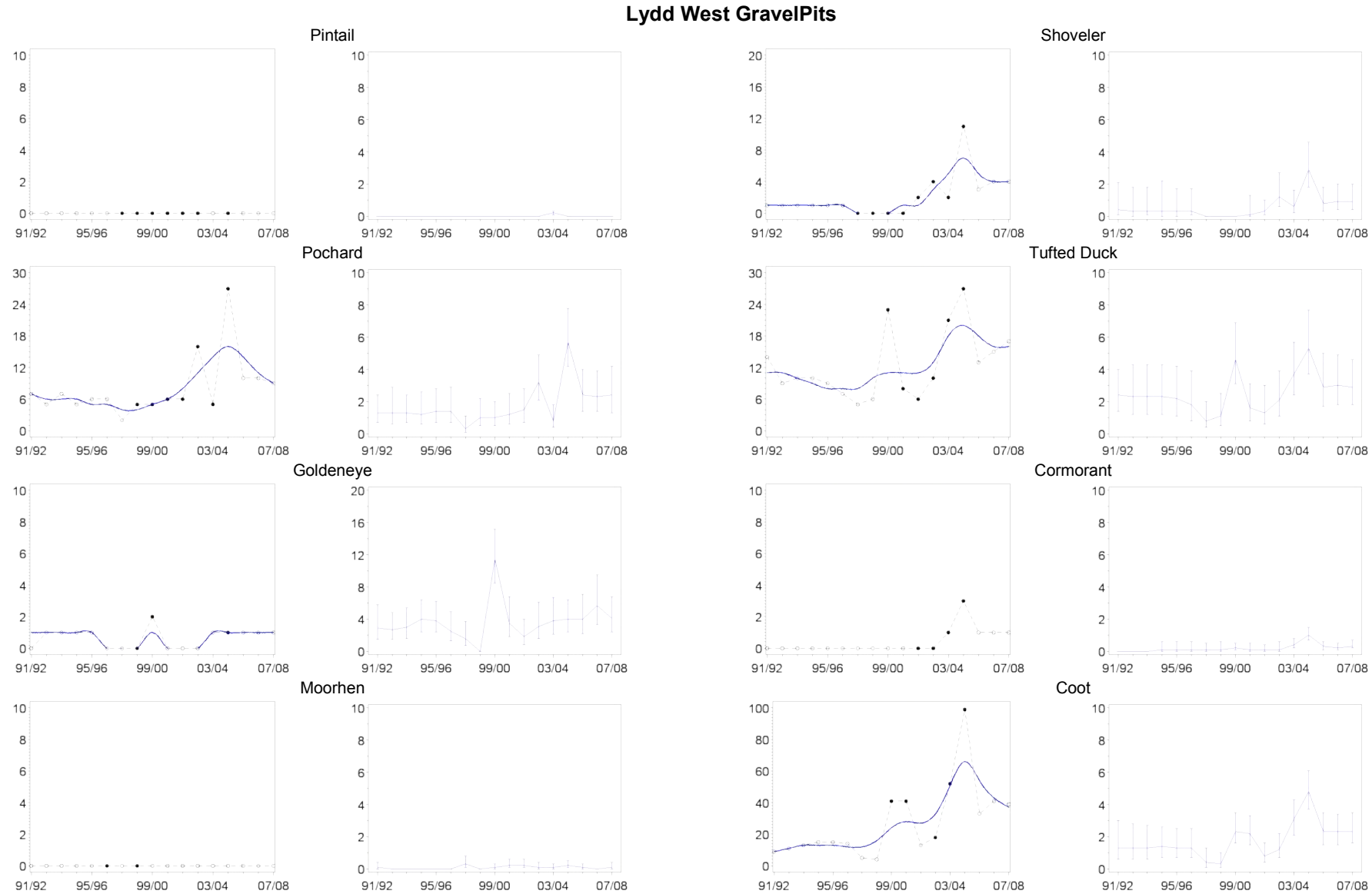
Teal



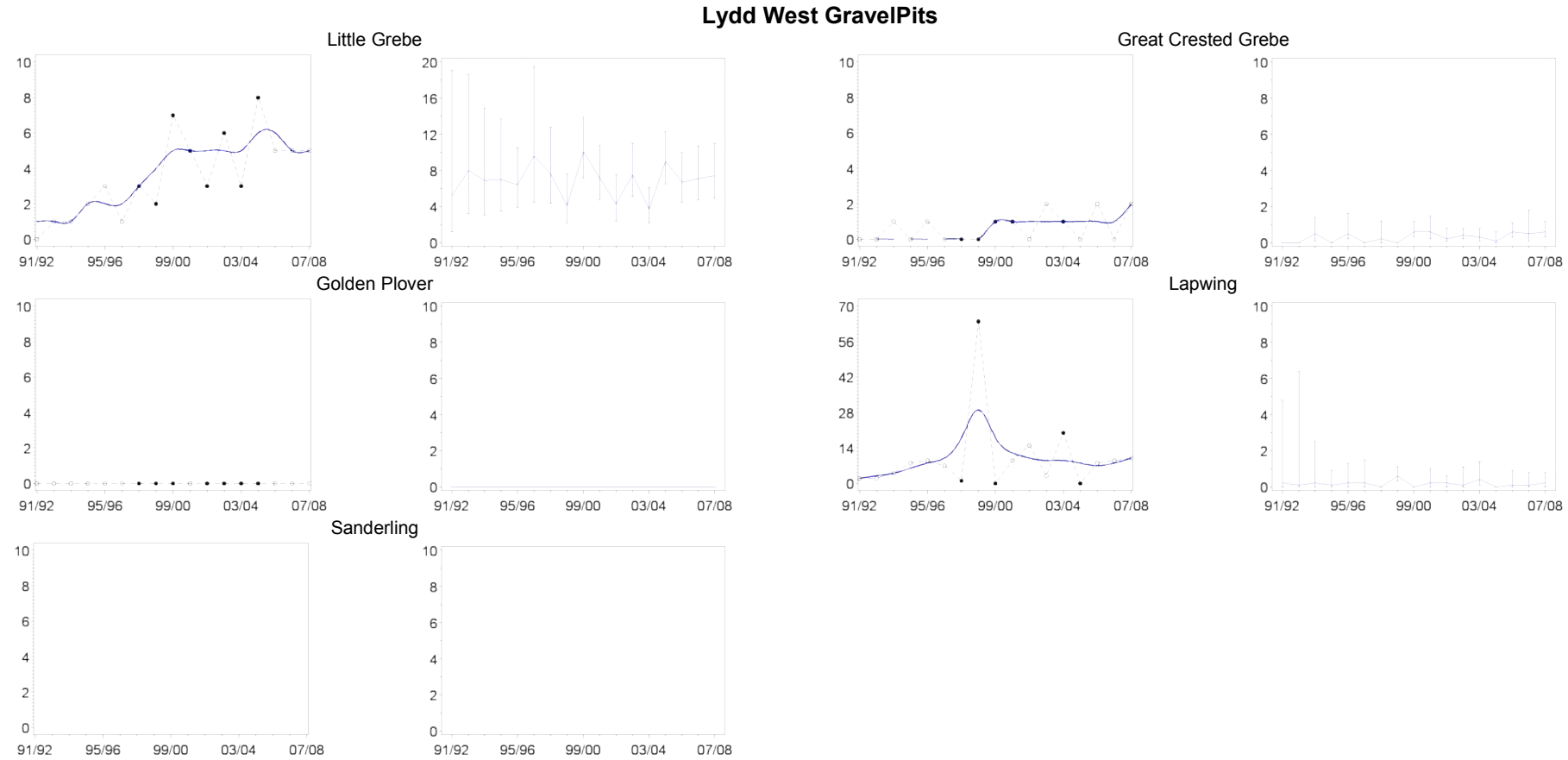
Mallard



Appendix B, Figure B.22796. Population trends of each species in sector 22796 (Lydd West Gravel Pits) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



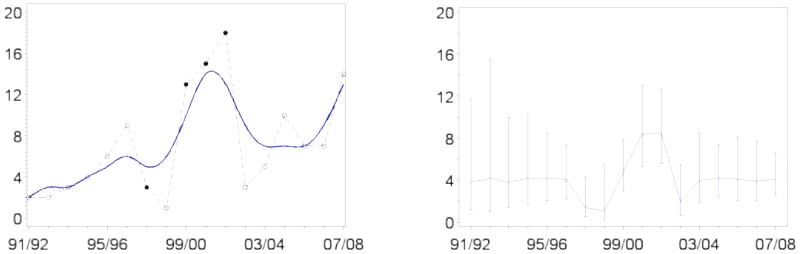
Appendix B, Figure B.22796. Continued



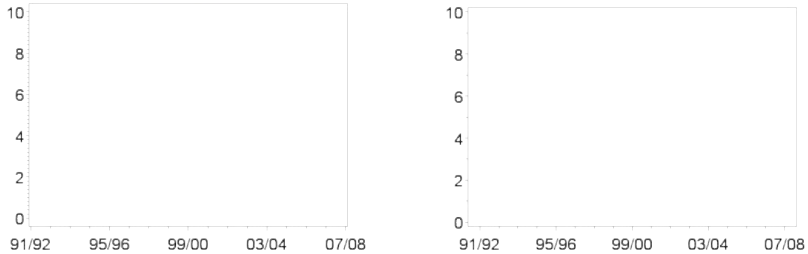
Appendix B, Figure B.22796. Continued

Whitealls GravelPits

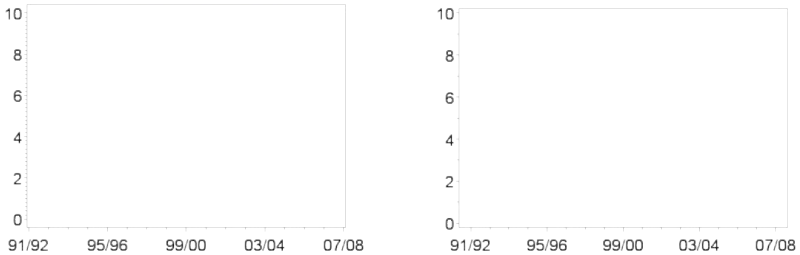
Mute Swan



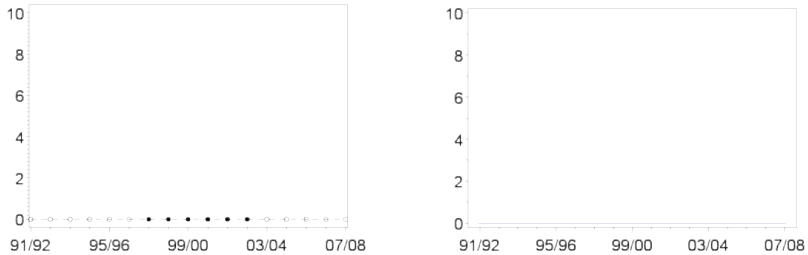
Bewick's Swan



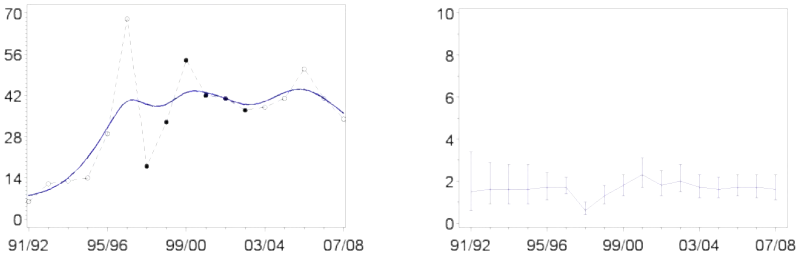
European White-fronted Goose



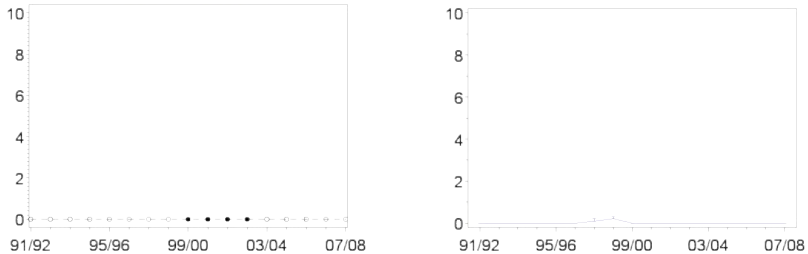
Greylag Goose



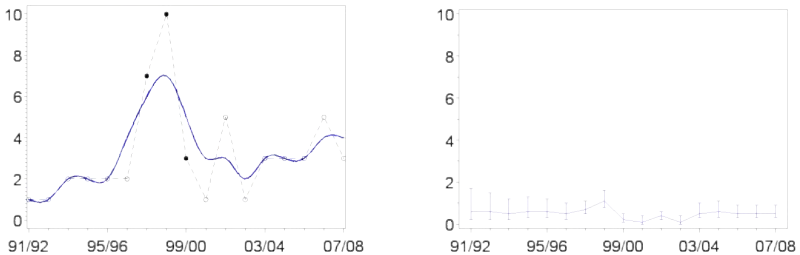
Wigeon



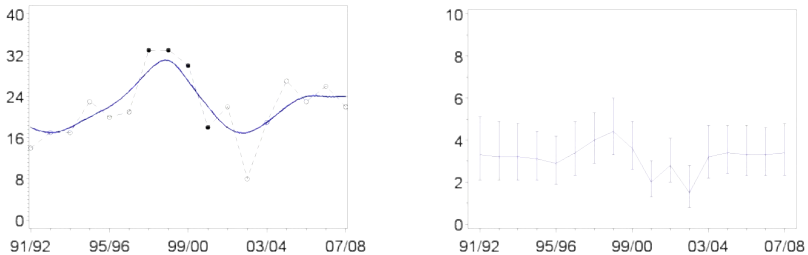
Gadwall



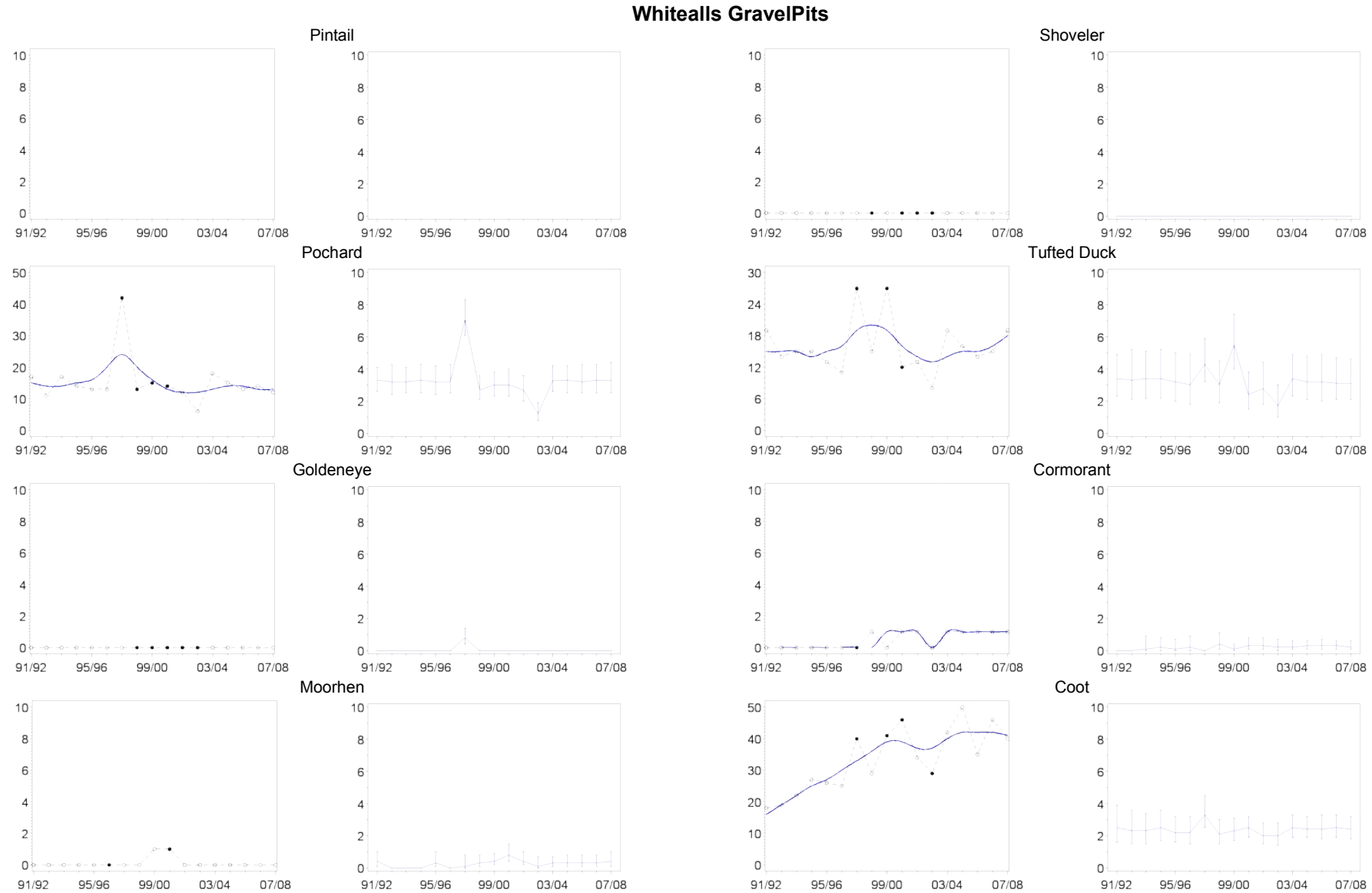
Teal



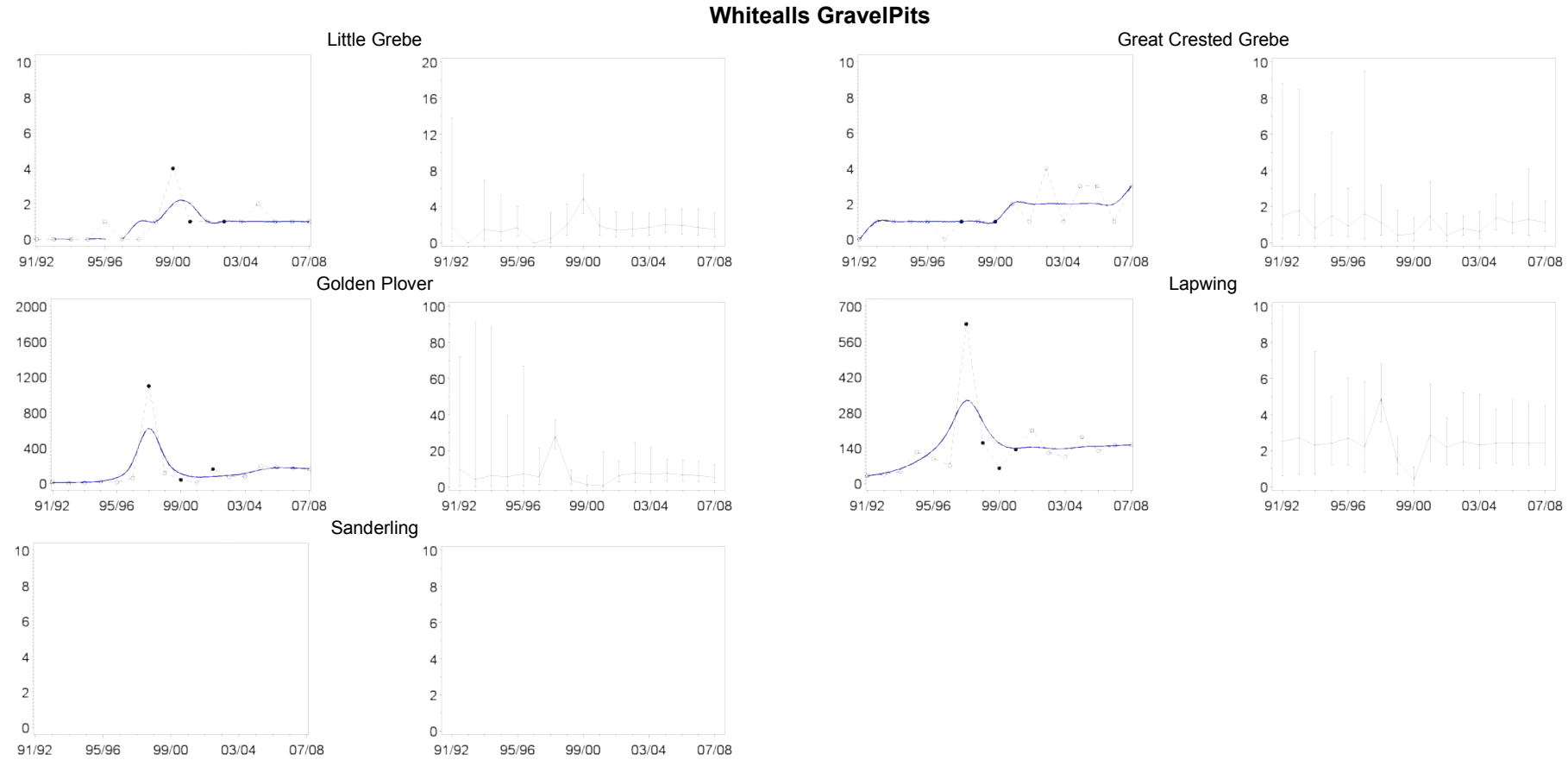
Mallard



Appendix B, Figure B.22797. Population trends of each species in sector 22797 (Whitehalls Gravel Pits) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



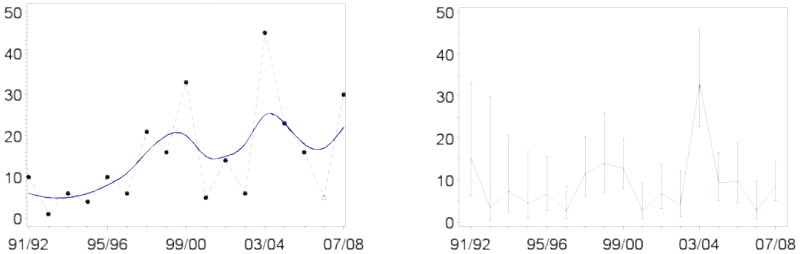
Appendix B, Figure B.22797. Continued



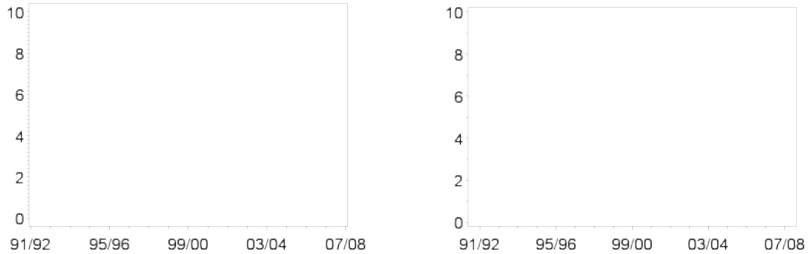
Appendix B, Figure B.22797. Continued

Scotney and Lydd West

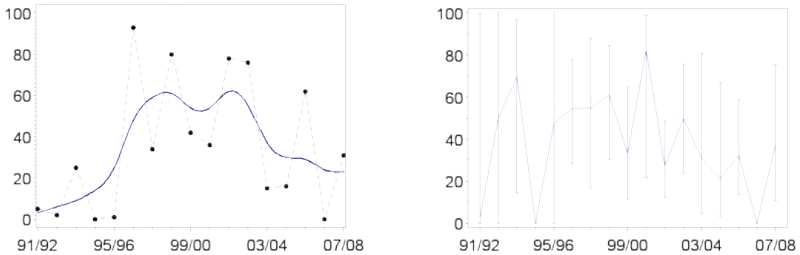
Mute Swan



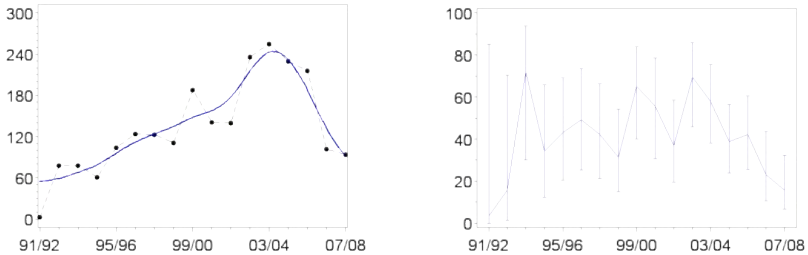
Bewick's Swan



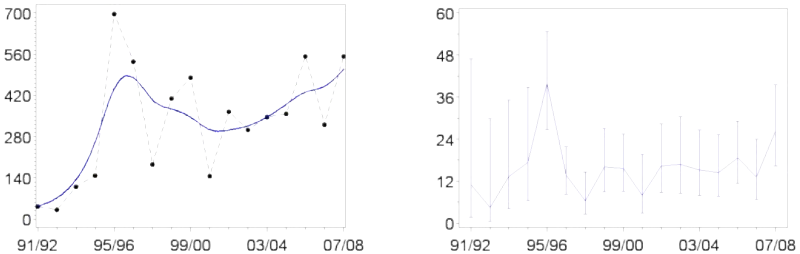
European White-fronted Goose



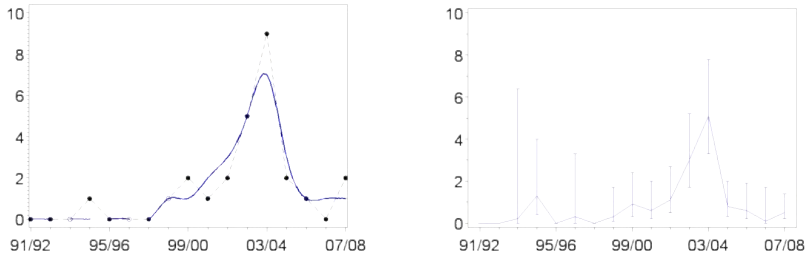
Greylag Goose



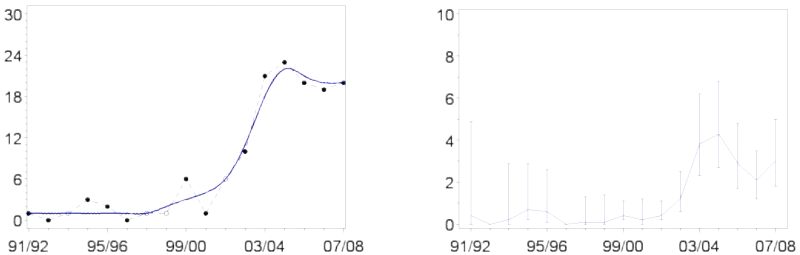
Wigeon



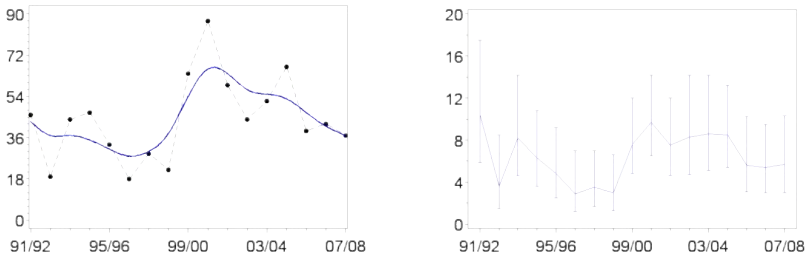
Gadwall



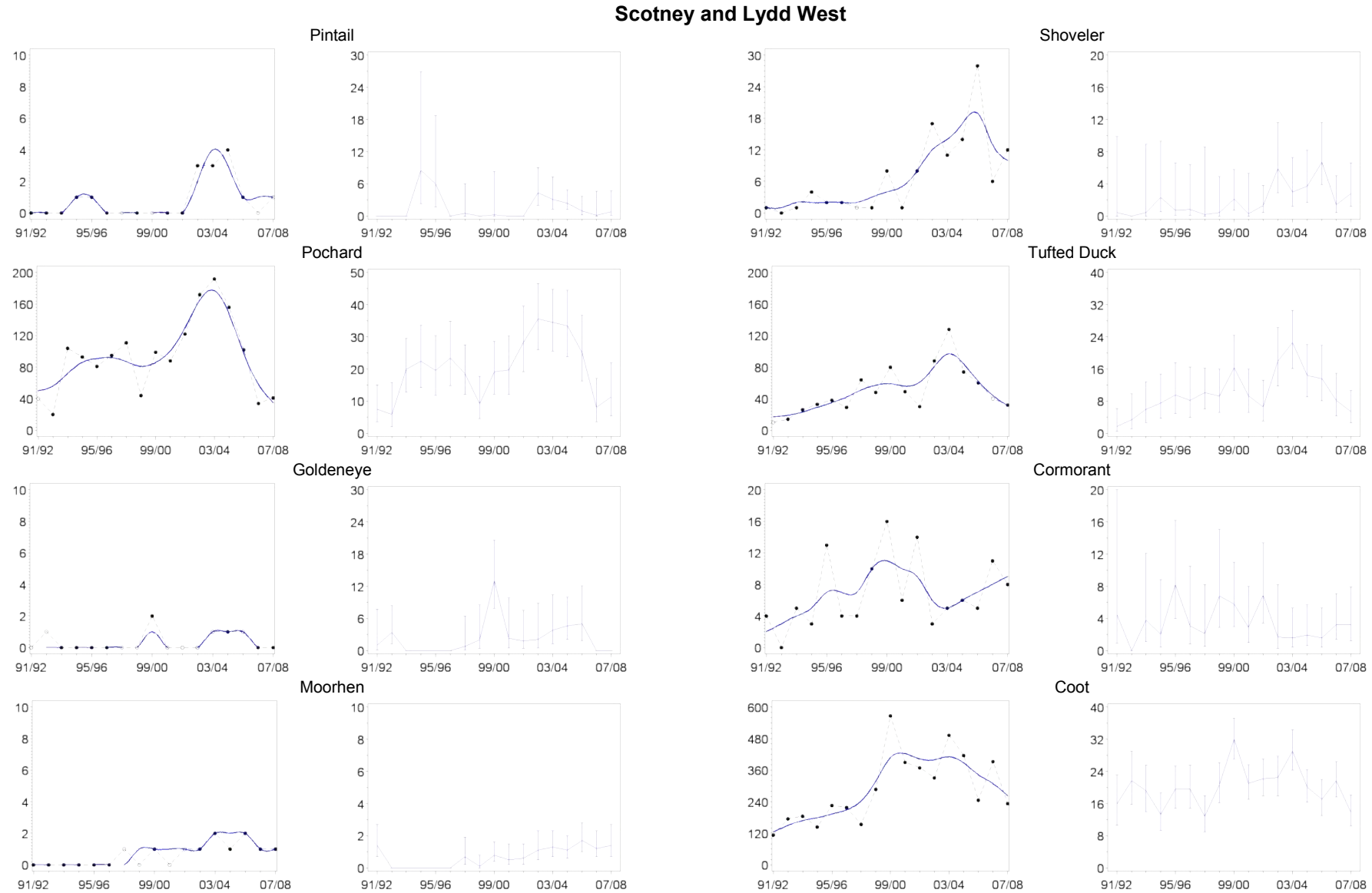
Teal



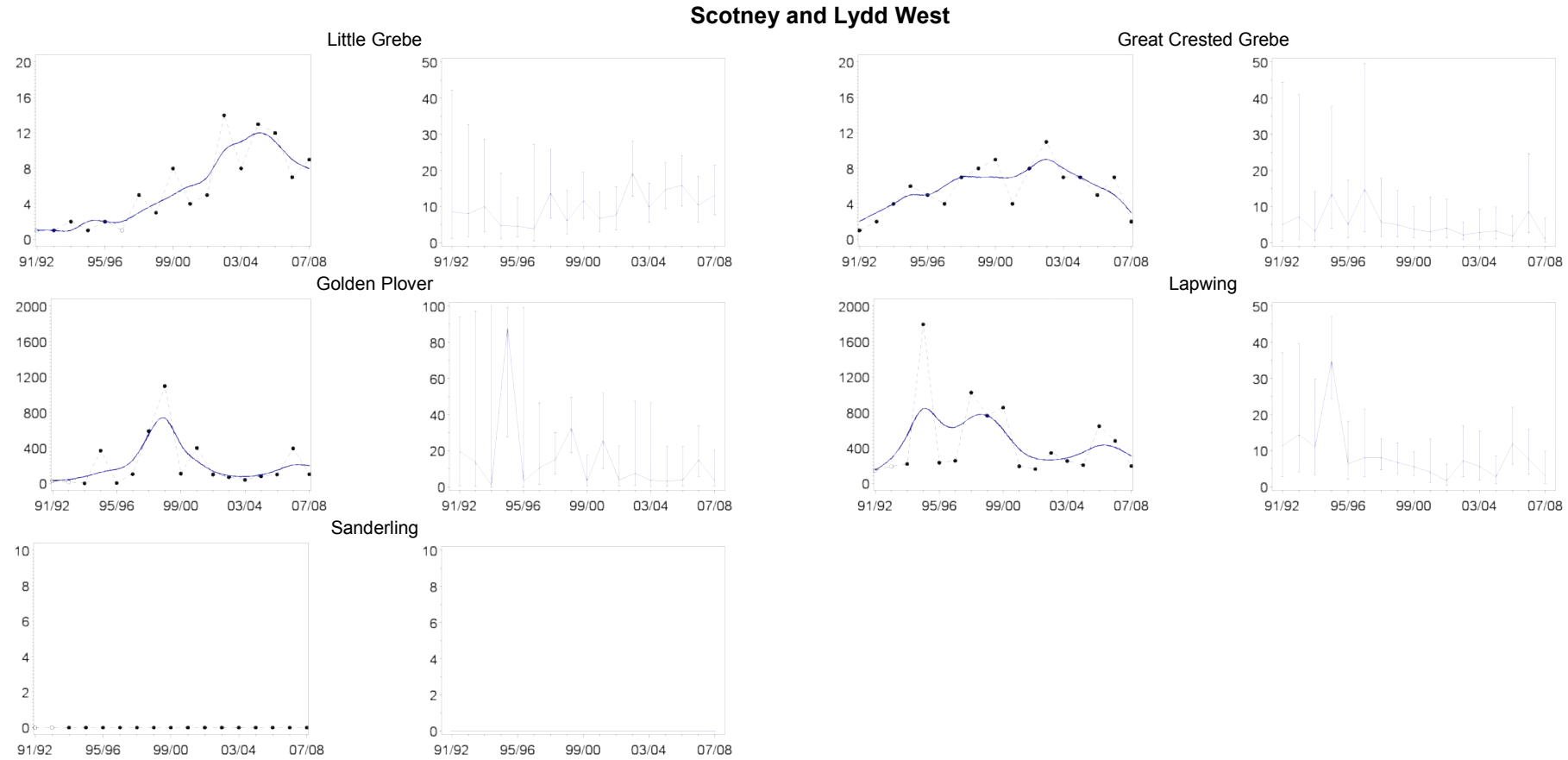
Mallard



Appendix B, Figure B.22798. Population trends of each species in sector 22798 (Scotney and Lydd West) (left-hand graphs), and the proportion of the Dungeness, Romney Marsh and Rye Bay SSSI population found in this sector per year (right-hand graphs).



Appendix B, Figure B.22798. Continued



Appendix B, Figure B.22798. Continued

Appendix C

Percentage change in the numbers of each species over the short- (5 yr), medium- (10 yr) and long- (15 yr) terms), for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI.

Cells are coloured to indicate trend status as follows: For each sector, declines are given precedence over increases as the former are of primary concern. Red - a maximum decline in numbers of at least 50% over at least one timescale; Orange - a maximum decline in numbers of at least 25% but less than 50% over at least one timescale; Light green – a maximum increased of at least 33% but less than 100% over at least one timescale; Dark green - a maximum increase of at least 100% on at least one timescale; White - a maximum decline less than 25% or maximum increase less than 33% on all three timescales. Grey - insufficient data for or too few individuals (arbitrarily taken as an average of ten or less) of, a given species to allow meaningful smoothed trends to be generated.

	Mute Swan	Bewick's Swan	GooseEuropean White-fronted	Greylag Goose	Wigeon	Gadwall
Dungeness, Romney Marsh and Rye Bay SSSI	+19.5%;+27%;+274.6%	N/A	-46.6%;+13.3%;+1242.%	+54.5%;+98.9%;+452.1%	+19.4%;-12.8%;+433.4%	+42.4%;+107.9%;+445.8%
Rye Bay	+50%;-49.4%;+44.4%	N/A	N/A	+88%;+683.3%;+4600%	-20.6%;+31.3%;+2290%	+68.3%;+68.3%;+573.3%
Rye Harbour	-23.8%;-75%;-40.7%	N/A	N/A	0%;+260%;+1700%	-9.7%;+34.4%;+1660%	+30.2%;+21.7%;+273.3%
Rye Harbour - SSSI area	0%;-62.9%;+8.3%	N/A	N/A	-12.5%;+180%;+250%	-12.2%;+48.3%;+454.8%	27.3%;+47.4%;+300%
Camber and East Guldeford	-66.7%;-90%;-40%	N/A	N/A	+33.3%;+300%;+300%	N/A	N/A
Pett Level	+100%;-23.1%;+150%	N/A	N/A	N/A	+37.6%;+202.2%;+1163.%	+123.5%;+192.3%;+3700%
Pett Level excluding Pannel Valley	+17.6%;+14.3%;+900%	N/A	N/A	N/A	25%;-9.8%;+400%	+37.5%;+57.1%;+1000%
Pannel Valley	+12.8%;+29.4%;+450%	N/A	N/A	+66.7%;+150%;+150%	+55.9%;+55.9%;+278.6%	+28.3%;+118.5%;+391.7%
Walland Marsh	+14.3%;+62.5%;+352.2%	N/A	-35.8%;+112.5%;+1600%	+126.3%;+182.9%;+667.9%	+54.3%;-37.7%;+373.1%	-26.2%;+14.8%;+210%
Fairfield SSSI	-33.3%;-33.3%;+100%	N/A	N/A	N/A	-18.2%;-19.6%;+350%	-60%;+0%;+100%
Lade Sands	N/A	N/A	N/A	N/A	N/A	N/A
Dungeness Gravel Pits	+23.5%;+55.6%;+171%	-80%;-83.3%;+0%	-63.4%;-50%;+225%	+16.2%;+28.5%;+186%	+11.4%;-14.8%;+135.5%	+83.8%;+161.5%;+312.1%
Dungeness RSPB Reserve	+53.1%;+28.9%;+133.3%	-75%;-83.3%;+0%	-100%;-100%;-100%	+48.3%;+4.7%;+45.9%	-4.5%;-21.3%;+45.6%	+75.7%;+161.7%;+434.8%
Lade Pit	0%;-50%;-85.7%	N/A	N/A	+1600%;+325%;+78.9%	+400%;+150%;+150%	+116.7%;+225%;+85.7%
Bretts Pits	+5.9%;+260%;+1700%	N/A	N/A	N/A	N/A	N/A
Whitehalls Gravel Pits	-30.8%;+50%;+350%	N/A	N/A	N/A	0%;+2.5%;+412.5%	N/A
Long Pits	N/A	N/A	N/A	N/A	N/A	N/A
Scotney and Lydd West	+13.3%;+54.5%;+183.3%	N/A	-61.3%;-50%;+700%	-25.8%;+17.9%;+140%	+49.3%;-6%;+948.8%	N/A
Scotney Pit	+54.5%;+112.5%;+142.9%	N/A	-31.7%;-14.6%;+1266.%	+33.5%;+102.7%;+312.7%	+19.8%;-45%;+518.6%	N/A
Lydd West Gravel Pits	+120%;+83.3%;+450%	N/A	N/A	+116.7%;+333.3%;+1200%	+10.2%;+54%;+646.2%	N/A

Appendix C, Table C.i. Percentage change over the short- (5 yr), medium- (10 yr) and long- (15 yr) terms), given in that order, for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Mute Swan to Gadwall.

	Teal	Mallard	Pintail	Shoveler	Pochard	Tufted Duck
Dungeness, Romney Marsh and Rye Bay SSSI	-29.3%;+27.9%;+160.2%	-2.7%;+1.7%;+28.2%	+69.2%;+197.3%;+1471.%	-7.2%;+48.3%;+105.7%	-14.6%;-12.8%;-12%	+3.8%;+13%;+13.2%
Rye Bay	+28.4%;+35.3%;+94.5%	+49.5%;+33.6%;+56.2%	0%;-66.7%;-33.3%	+16.3%;+77.9%;+137.3%	-9.7%;+10.9%;-6.4%	+28.3%;+96.2%;+90.7%
Rye Harbour	+46.8%;+17.2%;-7.9%	+51.9%;+40.6%;+26.8%	+50%;+0%;+0%	-2.5%;+50%;+50%	-24.5%;-10.1%;-27.3%	+19.4%;+72%;+59.3%
Rye Harbour - SSSI area	+30.4%;+45.1%;+164.1%	+4%;+5.4%;+17.2%	+50%;+200%;+200%	-3.8%;+71.1%;+108.1%	+17.2%;+51.1%;+33.3%	+24.4%;+86.6%;+56.1%
Camber and East Guldeford	+500%;-45.5%;-25%	+641.7%;+229.6%;+323.8%	N/A	0%;-83.3%;-80%	-78.8%;-76.1%;-75%	-20.8%;-9.5%;-26.9%
Pett Level	+22.6%;+76.3%;+984.6%	+18.8%;-1.7%;+5.6%	N/A	+41.7%;+126.7%;+277.8%	N/A	+33.3%;+566.7%;+1900%
Pett Level excluding Pannel Valley	-30.9%;+26.7%;+442.9%	-3.3%;+2.3%;+63%	N/A	-11.5%;+43.8%;+155.6%	N/A	0%;+0%;+0%
Pannel Valley	-33.7%;+56%;+187%	-3.1%;+12.5%;+8.6%	+69.6%;+200%;+1200%	+4.9%;+72%;+87%	N/A	N/A
Walland Marsh	-62.4%;-12.3%;+85.2%	-34.2%;-4%;+18.6%	+62.5%;+132.1%;+1525%	-66.4%;-51.7%;-8.7%	-18.2%;-40%;-52.6%	-20%;-33.3%;-33.3%
Fairfield SSSI	-37.9%;+15.7%;+126.9%	+70%;+75.9%;+131.8%	N/A	-50%;+33.3%;+100%	N/A	N/A
Lade Sands	N/A	N/A	N/A	N/A	N/A	N/A
Dungeness Gravel Pits	+5.4%;+17.2%;+73.2%	-19.8%;-31.7%;-24.9%	+82.6%;+366.7%;+740%	+24.7%;+84.7%;+68.1%	-15.3%;-19%;-16%	-7.1%;-10.7%;-13.8%
Dungeness RSPB Reserve	-12.1%;+6.2%;+58.3%	-31.1%;-52.3%;-40.5%	+78.3%;+412.5%;+720%	-1.1%;+52.5%;+47.6%	+18.5%;-3.6%;-37.4%	+3.3%;+0%;-25.4%
Lade Pit	+116.7%;+160%;+85.7%	+1.2%;+97.7%;+20.8%	N/A	+246.2%;+221.4%;+221.4%	-33.3%;-25.7%;+40.5%	-33.3%;-38.2%;-23.6%
Bretts Pits	N/A	+40%;+16.7%;-12.5%	N/A	N/A	+33.3%;-20%;-42.9%	-50%;-77.8%;-86.7%
Whitehalls Gravel Pits	+33.3%;+0%;+300%	+33.3%;-4%;+33.3%	N/A	N/A	+8.3%;-35%;-13.3%	+14.3%;+0%;+6.7%
Long Pits	N/A	N/A	N/A	N/A	N/A	-33.3%;+0%;+0%
Scotney and Lydd West	+233.3%;+1900%;+1900%	-35.9%;+46.4%;-4.7%	N/A	+62.5%;+550%;+1200%	-55.4%;-37%;+16%	-27.9%;+4.8%;+158.8%
Scotney Pit	+140%;+1100%;+1100%	+4.3%;+92%;+11.6%	N/A	0%;+250%;+600%	-8.3%;+22%;+122%	+11.3%;+40.5%;+268.8%
Lydd West Gravel Pits	N/A	-14.3%;+28.6%;+38.5%	N/A	+300%;+300%;+300%	+37.5%;+120%;+57.1%	+45.5%;+100%;+45.5%

Appendix C, Table C.ii. Percentage change over the short- (5 yr), medium- (10 yr) and long- (15 yr) terms), given in that order, for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Teal to Tufted Duck.

	Goldeneye	Little Grebe	Great Crested Grebe	Cormorant	Moorhen	Coot
Dungeness, Romney Marsh and Rye Bay SSSI	+6.7%;-15.8%;-11.1%	+2.9%;+105.9%;+483.3%	-28.3%;+118.4%;+352.4%	+42.3%;+90.6%;+544.7%	+11.9%;+48.7%;+1514.%	+0.7%;+45.5%;+151.8%
Rye Bay	-33.3%;+0%;+100%	-38.2%;+5%;+90.9%	+32.6%;+258.8%;+771.4%	+60%;+70.7%;+220%	+43.1%;+56.6%;+1085.%	+6.2%;+48.8%;+154.6%
Rye Harbour	-33.3%;+0%;+100%	-24.2%;+25%;+127.3%	+47.4%;+180%;+300%	+42.3%;+63.2%;+177.5%	+31.3%;+20%;+600%	+5.8%;+24.2%;+99.2%
Rye Harbour - SSSI area	0%;+0%;-33.3%	-38.1%;+30%;+225%	+38.9%;+212.5%;+316.7%	+33.3%;+74.5%;+540%	+28%;+33.3%;+1500%	-1.1%;+3.1%;+89.3%
Camber and East Guldeford	N/A	-15.4%;+22.2%;+266.7%	+50%;+50%;+200%	+128.6%;+0%;+220%	+25%;-9.1%;+900%	+22.4%;+166.7%;+300%
Pett Level	N/A	N/A	-25.9%;+233.3%;+233.3%	+250%;+0%;+75%	+38.5%;+125%;+3500%	+12.4%;+383.3%;+2316.%
Pett Level excluding Pannel Valley	N/A	N/A	-39.4%;+162.5%;+950%	+22.2%;+106.3%;+725%	+15.4%;+50%;+1400%	-8.7%;+16.7%;+250%
Pannel Valley	N/A	N/A	N/A	N/A	+9.1%;+41.2%;+1100%	+3.1%;+77.2%;+225.8%
Walland Marsh	N/A	+16.7%;+40%;+250%	+100%;+100%;+100%	+80%;+50%;+350%	-100%;-100%;-100%	-65.1%;-56.1%;-17.1%
Fairfield SSSI	N/A	N/A	N/A	N/A	N/A	+40%;+75%;+250%
Lade Sands	N/A	N/A	-52.4%;+102.2%;+600%	N/A	N/A	N/A
Dungeness Gravel Pits	+8.3%;-23.5%;-18.8%	+55.6%;+281.8%;+2000%	+46.7%;+63%;+76%	+30.8%;+95.4%;+2328.%	+5.9%;+89.5%;+3500%	+3.5%;+49.2%;+146%
Dungeness RSPB Reserve	-10%;-25%;-30.8%	N/A	+50%;+33.3%;+20%	+31.9%;+106.6%;+1470%	N/A	+28%;+76.8%;+131.8%
Lade Pit	+33.3%;-33.3%;+33.3%	+266.7%;+1000%;+1000%	+30%;+225%;+550%	N/A	N/A	-26.3%;-14.1%;-48.6%
Bretts Pits	N/A	N/A	N/A	N/A	N/A	-50%;+50%;+200%
Whitehalls Gravel Pits	N/A	N/A	N/A	N/A	N/A	+13.5%;+40%;+162.5%
Long Pits	N/A	N/A	N/A	N/A	N/A	-34.6%;-46.9%;-26.1%
Scotney and Lydd West	N/A	+28.6%;+350%;+800%	-37.5%;-16.7%;+150%	-11.1%;+14.3%;+300%	N/A	-23.3%;+47.8%;+147.2%
Scotney Pit	N/A	+25%;+150%;+400%	+157.1%;+200%;+800%	-12.5%;+16.7%;+250%	N/A	-5.3%;+72.2%;+190.3%
Lydd West Gravel Pits	N/A	0%;+150%;+400%	N/A	N/A	N/A	+59.3%;+258.3%;+377.8%

Appendix C, Table C.iii. Percentage change over the short- (5 yr), medium- (10 yr) and long- (15 yr) terms), given in that order, for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Goldeneye to Coot.

	Golden Plover	Lapwing	Sanderling
Dungeness, Romney Marsh and Rye Bay SSSI	+51.4%; +102.7%; +2038.%	-14.5%; -1.5%; +419.5%	+4.8%; -58%; +322.6%
Rye Bay	-10.8%; +75.7%; +67.1%	-4.6%; -21.8%; +55.8%	+117.6%; +89.7%; +196%
Rye Harbour	+335.8%; +158.4%; +104.2%	+12.5%; -7.8%; +25.6%	+93.9%; +73%; +156%
Rye Harbour - SSSI area	N/A	+7.3%; +11.2%; +514.8%	+71%; +253.3%; +783.3%
Camber and East Guldeford	+120%; -2.4%; +572.2%	+7.4%; -12.1%; +354.3%	+200%; -50%; +200%
Pett Level	-32.4%; +631.8%; +1688.%	-6.9%; -23.6%; +34.9%	N/A
Pett Level excluding Pannel Valley	+8.5%; +87%; +3185.%	-17.3%; +6%; +963.9%	N/A
Pannel Valley	+96.4%; +171.7%; +1530%	-23.3%; -14.8%; +360%	N/A
Walland Marsh	+112.1%; +199.5%; +2806.%	-24%; -10.2%; +363.3%	N/A
Fairfield SSSI	-75.3%; -71.6%; +153.3%	-18.9%; +0.8%; +370.1%	N/A
Lade Sands	N/A	N/A	-22.1%; -74.2%; +208.3%
Dungeness Gravel Pits	-34.2%; -57.9%; +386.4%	+6.6%; -36.7%; +283.9%	N/A
Dungeness RSPB Reserve	-95.4%; -74.2%; -38.5%	-9%; -21.8%; +542.9%	N/A
Lade Pit	N/A	N/A	N/A
Bretts Pits	-67.9%; -30.8%; +800%	-81.2%; -63.6%; +45.5%	N/A
Whitehalls Gravel Pits	+130.3%; -28.3%; +2087.%	+4.2%; -32%; +432.1%	N/A
Long Pits	N/A	N/A	N/A
Scotney and Lydd West	+48.9%; -20.7%; +613.8%	+43.5%; -36%; +170.7%	N/A
Scotney Pit	-25.5%; -58.8%; +262.1%	-19.4%; -63.6%; +52.4%	N/A
Lydd West Gravel Pits	N/A	-20%; -20%; +300%	N/A

Appendix C, Table C.iv. Percentage change over the short- (5 yr), medium- (10 yr) and long- (15 yr) terms), given in that order, for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Waders.

Appendix D

Significance of long-term change in the proportional contribution of each WeBS count section to the total number of each species on the Dungeness, Romney Marsh and Rye Bay SSSI.

Cells are coloured to indicate a sector's proportional contribution to numbers on Dungeness, Romney Marsh and Rye Bay SSSI as a whole, as follows: Red - a highly significant decline ($P < 0.01$); Orange - a significant decline ($P < 0.05$); Light green – a significant increase ($P < 0.05$); Dark green - a highly significant increase ($P < 0.01$); White – no significant trend over the period. Grey - insufficient data for or too few individuals (arbitrarily taken as an average of ten or less) of, a given species to allow a meaningful Logit model to be fitted

	Mute Swan	Bewick's Swan	GooseEuropean White-fronted	Greylag Goose	Wigeon	Gadwall
Dungeness, Romney Marsh and Rye Bay SSSI						
Rye Bay	-0.1563; P 0	0.0618; P 0.8084	0.0383; P 0.9239	0.1177; P 0.011	0.0656; P 0.0003	-0.0061; P 0.7001
Rye Harbour	-0.2097; P 0	0.0618; P 0.8084	-0.4108; P 0.3373	0.0593; P 0.2982	0.0488; P 0.0124	-0.0649; P 0
Rye Harbour - SSSI area	-0.1329; P 0	0.0618; P 0.8084	0.016; P 0.9423	0.0218; P 0.6933	0.0298; P 0.1113	-0.0333; P 0.0186
Camber and East Guldeford	-0.1783; P 0		-0.624; P 0.0259	-0.0038; P 0.9488	-0.2701; P 0.0009	-0.3918; P 0
Pett Level	-0.0784; P 0.0098	0.0586; P 1	-0.5048; P 0.4342	0.1667; P 0.0011	0.1214; P 0	0.0752; P 0.0005
Pett Level excluding Pannel Valley	0.0117; P 0.3489		0.041; P 0.2664	0.0309; P 0.0664	0.0204; P 0.01	-0.0174; P 0.2066
Pannel Valley	0.0202; P 0.0905		-0.0968; P 1	-0.0397; P 0.2426	0.029; P 0.6828	0.0022; P 0.8962
Walland Marsh	0.0355; P 0.0321	-0.061; P 0.6676	0.091; P 0.0708	0.0486; P 0.0211	-0.0507; P 0.0072	-0.0747; P 0
Fairfield SSSI	-0.0537; P 0	-0.2328; P 0.1637	-0.2018; P 0.4073	0.6769; P 0.0004	0.0022; P 0.861	-0.0262; P 0.3948
Lade Sands					-0.4083; P 0.0332	
Dungeness Gravel Pits	0.0072; P 0.6752	-0.2311; P 0.2292	-0.1607; P 0.0034	-0.1596; P 0	-0.0712; P 0.0014	0.0125; P 0.4123
Dungeness RSPB Reserve	-0.0287; P 0.1661	-0.3463; P 0.1648	-0.2763; P 0.0101	-0.1378; P 0.0001	-0.094; P 0	0.0178; P 0.2203
Lade Pit	-0.2683; P 0		0.4179; P 0	-0.0199; P 0.7582	0.0175; P 0.9379	-0.0227; P 0.3517
Bretts Pits	0.1111; P 0.0001	0.2864; P 0.2313		0.1388; P 0.2554	-0.4978; P 0.187	-0.2624; P 0.0002
Whitehalls Gravel Pits	0.0087; P 0.7213			-0.1425; P 1	0.0128; P 0.2472	-0.1555; P 0.1598
Long Pits	-0.075; P 0.0122			0.0628; P 0.6348		0.1183; P 0.3033
Scotney and Lydd West	0.0158; P 0.5748		-0.101; P 0.0497	-0.0397; P 0.1571	0.0163; P 0.4982	0.0521; P 0.3285
Scotney Pit	0.0225; P 0.438		-0.0412; P 0.3759	0.0162; P 0.5099	-0.0435; P 0.0833	0.1452; P 0.0005
Lydd West Gravel Pits	0.0288; P 0.355		0.4824; P 0.3094	0.0871; P 0.264	0.0515; P 0.024	0.0977; P 0.2243

Appendix D, Table D.i. Significance of long-term change in the proportional contribution of each WeBS count section to the total number of each species on the Dungeness, Romney Marsh and Rye Bay SSSI. Mute Swan to Gadwall.

	Teal	Mallard	Pintail	Shoveler	Pochard	Tufted Duck
Dungeness, Romney Marsh and Rye Bay SSSI						
Rye Bay	-0.0056; P 0.8069	0.0168; P 0.2095	-0.2724; P 0	0.0135; P 0.421	0.0058; P 0.6689	0.0584; P 0
Rye Harbour	-0.0852; P 0.001	0.0065; P 0.6091	-0.2487; P 0.0006	-0.025; P 0.1758	-0.0115; P 0.3951	0.0398; P 0
Rye Harbour - SSSI area	0.0106; P 0.6459	-0.0047; P 0.655	-0.0487; P 0.5829	0.0049; P 0.7752	0.0372; P 0.0019	0.0366; P 0
Camber and East Guldeford	-0.2144; P 0.0001	0.1096; P 0	-0.5303; P 0	-0.2262; P 0	-0.0603; P 0.0003	-0.0274; P 0.0204
Pett Level	0.065; P 0.0006	-0.0226; P 0.1979	-0.1756; P 0.0004	0.0607; P 0.0115	0.1282; P 0	0.1661; P 0
Pett Level excluding Pannel Valley	0.0146; P 0.1658	0.0091; P 0.3063	0.0188; P 0.2599	0.0147; P 0.2106	0.0068; P 0.9004	0.0106; P 0.6956
Pannel Valley	0.0429; P 0.0097	0.0292; P 0.0011	0.0121; P 0.3012	0.014; P 0.3932	0.1036; P 0.0192	-0.0317; P 0.6256
Walland Marsh	-0.0511; P 0.0251	-0.0023; P 0.8906	-0.0489; P 0.1575	-0.0833; P 0.0012	-0.0642; P 0.0074	-0.0446; P 0.0278
Fairfield SSSI	0.0051; P 0.7431	0.0379; P 0	-0.0352; P 0.7124	-0.0005; P 0.9851		
Lade Sands	-0.102; P 0.3414					
Dungeness Gravel Pits	-0.0494; P 0.0484	-0.0702; P 0	0.0224; P 0.5397	-0.0076; P 0.7038	-0.0119; P 0.3551	-0.0606; P 0
Dungeness RSPB Reserve	-0.0593; P 0.0163	-0.0873; P 0	0.024; P 0.5131	-0.0333; P 0.0682	-0.0535; P 0.0006	-0.0564; P 0
Lade Pit	0.0375; P 0.3093	0.0232; P 0.1676	-0.1817; P 0.0548	0.0721; P 0.0104	0.0301; P 0.0553	-0.0255; P 0.036
Bretts Pits		-0.0314; P 0.1167		0.1288; P 0.2543	-0.0476; P 0.0806	-0.1489; P 0
Whitehalls Gravel Pits	-0.0269; P 0.2097	-0.0046; P 0.6642		-0.0941; P 0.5182	-0.012; P 0.2014	-0.0103; P 0.3581
Long Pits	0.0712; P 0.4305	0.2017; P 0		0.1003; P 0.3895	0.6149; P 0.0029	-0.0041; P 0.8161
Scotney and Lydd West	0.2491; P 0	0.0115; P 0.4927	-0.0119; P 0.8783	0.15; P 0.0015	0.0457; P 0.0055	0.0583; P 0.0023
Scotney Pit	0.2075; P 0	0.0121; P 0.4853	0.0609; P 0.4495	0.0891; P 0.0632	0.0753; P 0	0.069; P 0.0002
Lydd West Gravel Pits	0.1761; P 0.0001	0.0126; P 0.2075	0.0842; P 0.7797	0.1559; P 0.0019	0.0763; P 0.0001	0.0372; P 0.0156

Appendix D, Table D.ii. Significance of long-term change in the proportional contribution of each WeBS count section to the total number of each species on the Dungeness, Romney Marsh and Rye Bay SSSI. Teal to Tufted Duck.

	Goldeneye	Little Grebe	Great Crested Grebe	Cormorant	Moorhen	Coot
Dungeness, Romney Marsh and Rye Bay SSSI						
Rye Bay	0.0616; P 0.0056	-0.0383; P 0.0477	-0.0287; P 0.0537	0.0092; P 0.2989	-0.1352; P 0	0.0507; P 0.1412
Rye Harbour	0.0545; P 0.0149	-0.0436; P 0.021	-0.0596; P 0	-0.0188; P 0.0443	-0.1251; P 0	-0.0062; P 0.8555
Rye Harbour - SSSI area	0.0013; P 0.9479	-0.0043; P 0.8221	0.0002; P 0.9886	-0.0382; P 0	-0.0558; P 0	0.0096; P 0.769
Camber and East Guldeford	0.0091; P 0.859	-0.0765; P 0.001	-0.042; P 0.0033	0.0496; P 0	-0.0444; P 0.0008	-0.0995; P 0.0056
Pett Level	-0.1508; P 0.1377	-0.0767; P 0.0309	0.0478; P 0.0014	0.1091; P 0	0.1287; P 0.0064	0.0301; P 0.4971
Pett Level excluding Pannel Valley	-24.5278; P .	0.034; P 0.0136	0; P 0.9988	-0.0089; P 0.6136	0.0062; P 0.9426	0.061; P 0.0012
Pannel Valley		0.0306; P 0.144	-0.0043; P 0.7857	0.0381; P 0	0.0415; P 0.2017	0.0381; P 0
Walland Marsh		-0.0369; P 0.0184	-0.2062; P 0	-0.0717; P 0.006	-0.037; P 0.141	-0.0183; P 0.6605
Fairfield SSSI		-0.0398; P 0.1831	0.0056; P 0.6757	0.0178; P 0.4367	-0.0321; P 0.2238	
Lade Sands						0.0147; P 0.6986
Dungeness Gravel Pits	-0.0616; P 0.0056	0.0335; P 0.0646	0.0423; P 0.0067	-0.0093; P 0.3035	0.1214; P 0	-0.0919; P 0.0236
Dungeness RSPB Reserve	-0.0395; P 0.0231	0.0344; P 0.0491	0.0358; P 0.0251	0.0059; P 0.5532	0.0776; P 0	-0.1275; P 0.0011
Lade Pit	0.03; P 0.1056	0.017; P 0.5807	0.0255; P 0.1579	-0.1066; P 0	0.1308; P 0	0.0193; P 0.6487
Bretts Pits	-0.1139; P 0.3943	0.0627; P 0.1941	0.0275; P 0.3296	0.0299; P 0.1394	0.2269; P 0.0014	0.209; P 0.0016
Whitehalls Gravel Pits	-0.0708; P 0.7766	0.0662; P 0.0822	0.0432; P 0.3089	-0.0005; P 0.9578	0.0056; P 0.8603	0.0145; P 0.6147
Long Pits		0.0625; P 0.7555	0.005; P 0.8178	-0.1073; P 0	0.0394; P 0.4457	-0.2297; P 0.0439
Scotney and Lydd West	0.0566; P 0.196	-0.0466; P 0.1662	0.1729; P 0	0.0061; P 0.5301	0.0628; P 0.0124	-0.0839; P 0.0259
Scotney Pit	-0.1599; P 0.25	-0.0601; P 0.0783	0.1574; P 0.0001	0.0155; P 0.0707	0.0284; P 0.2693	0.0442; P 0.1755
Lydd West Gravel Pits	0.0264; P 0.1776	0.1507; P 0.001	0.0254; P 0.7008	0.0761; P 0	0.0008; P 0.9597	0.0505; P 0.1671

Appendix D, Table D.iii. Significance of long-term change in the proportional contribution of each WeBS count section to the total number of each species on the Dungeness, Romney Marsh and Rye Bay SSSI. Goldeneye to Coot.

	Golden Plover	Lapwing	Sanderling
Dungeness, Romney Marsh and Rye Bay SSSI			
Rye Bay	-0.0145; P 0.8227	-0.091; P 0.0041	0.1247; P 0.0144
Rye Harbour	-0.0176; P 0.8004	-0.0854; P 0.0069	0.1115; P 0.027
Rye Harbour - SSSI area	0.2992; P 0.0021	0.0171; P 0.5094	0.2141; P 0
Camber and East Guldeford	-0.0074; P 0.9258	0.0069; P 0.8338	-0.0252; P 0.7669
Pett Level	0.1053; P 0.084	-0.0726; P 0.0215	-0.05; P 0.7718
Pett Level excluding Pannel Valley	-0.0167; P 0.444	0.0632; P 0.0003	-0.0762; P 0.0906
Pannel Valley	0.0319; P 0.2922	-0.0065; P 0.7145	
Walland Marsh	0.1035; P 0.0094	-0.0421; P 0.1096	
Fairfield SSSI	-0.1494; P 0.0006	0.0345; P 0.3176	
Lade Sands	-0.3444; P 0.0321		-0.1424; P 0.0012
Dungeness Gravel Pits	-0.2125; P 0.0001	-0.0643; P 0.037	0.0319; P 1
Dungeness RSPB Reserve	-0.0799; P 0.4918	-0.0038; P 0.9236	0.0319; P 1
Lade Pit		0.2301; P 0.1498	
Bretts Pits	-0.0637; P 0.4256	-0.0267; P 0.6191	
Whitehalls Gravel Pits	-0.0884; P 0.072	-0.0147; P 0.5944	
Long Pits			
Scotney and Lydd West	-0.1681; P 0.0086	-0.1155; P 0.0013	0.0319; P 1
Scotney Pit	-0.2221; P 0.0001	-0.1639; P 0	
Lydd West Gravel Pits	-0.2191; P 1	-0.0251; P 0.7527	

Appendix D, Table D.iv. Significance of long-term change in the proportional contribution of each WeBS count section to the total number of each species on the Dungeness, Romney Marsh and Rye Bay SSSI. Waders.

Appendix E

Five-year mean of peaks for the periods 1993/94 to 1997/98, 1998/99 to 2002/03 and 2003/04 to 2007/08 and Peak count over winter 2007/08 for each species for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI.

Cells are colour coded to indicate sectors that hold a substantial proportion of the SSSI total for the species defined arbitrarily and in order of priority as follows: Dark Green – sectors with a mean of peak counts over the last five winters that is at least 20% of the total mean of peak counts for the site over the same period; Dark Blue – Sites with a mean of peak count over the last five winters that is between 10% and 20% of the total mean of peak count for the site over the same period; Light Green – Sites with a peak count in the latest year that is at least 20% of the total peak count for the site in the latest year; Light Blue – Sites with a peak count in the latest year that is between 10% and 20% of the total peak count for the site in the latest year. An 'x' is used to indicate no data available from the sector in question for the relevant period (for five-winter mean) or for the most recent winter (for last winter peak.

	Mute Swan	Bewick's Swan	European White-fronted Goose	Greylag Goose	Wigeon	Gadwall
Dungeness, Romney Marsh and Rye Bay SSSI	359; 264; 322 (476)	158; 149; 136 (127)	462; 430; 256 (194)	512; 556; 933 (1409)	9061; 4855; 4998 (4010)	247; 302; 336 (485)
Rye Bay	123; 61; 67 (128)	0; 1; 0 (0)	2; 0; 5 (0)	14; 86; 155 (210)	289; 639; 516 (927)	97; 107; 140 (281)
Rye Harbour	113; 55; 35 (56)	0; 1; 0 (0)	1; 0; 0 (0)	13; 74; 78 (25)	220; 443; 357 (641)	85; 86; 77 (129)
Rye Harbour - SSSI area	72; 38; 32 (54)	0; 1; 0 (0)	0; 0; 0 (0)	17; 63; 75 (12)	287; 443; 357 (639)	95; 86; 77 (129)
Camber and East Guldeford	87; 30; 5 (6)	0; 0; 0 (0)	1; 0; 0 (0)	4; 15; 12 (13)	80; 0; 14 (50)	23; 0; 0 (0)
Pett Level	28; 15; 23 (54)	0; 0; 0 (0)	1; 0; 0 (0)	3; 25; 51 (104)	87; 281; 265 (471)	26; 42; 67 (111)
Pett Level excluding Pannel Valley	29; x; x (x)	0; x; x (x)	2; x; x (x)	4; x; x (x)	21; x; x (x)	22; x; x (x)
Pannel Valley	18; x; x (x)	0; x; x (x)	0; x; x (x)	0; x; x (x)	2; x; x (x)	26; x; x (x)
Walland Marsh	148; 144; 175 (330)	315; 146; 136 (127)	263; 241; 171 (142)	174; 146; 334 (340)	7000; 2390; 2520 (1600)	56; 101; 50 (35)
Fairfield SSSI	x; 11; 6 (8)	x; 2; 0 (0)	x; 0; 0 (0)	x; 0; 13 (9)	x; 271; 239 (210)	x; 25; 11 (12)
Lade Sands	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)	4; 0; 0 (0)	0; 0; 0 (0)
Dungeness Gravel Pits	103; 137; 155 (205)	22; 21; 6 (7)	155; 320; 119 (160)	368; 468; 645 (1075)	2626; 2358; 2123 (1708)	129; 149; 203 (295)
Dungeness RSPB Reserve	63; 74; 104 (121)	22; 15; 5 (2)	32; 61; 2 (0)	204; 208; 221 (351)	2093; 1658; 1276 (940)	122; 137; 194 (256)
Lade Pit	10; 4; 5 (4)	0; 0; 0 (0)	0; 0; 9 (0)	91; 1; 180 (414)	13; 3; 28 (56)	10; 12; 36 (32)
Bretts Pits	15; 38; 52 (91)	0; 7; 1 (7)	0; 0; 0 (0)	4; 9; 27 (95)	1; 0; 0 (0)	3; 1; 0 (0)
Whitehalls Gravel Pits	8; 40; x (x)	0; 0; x (x)	0; 0; x (x)	0; 0; x (x)	67; 128; x (x)	1; 1; x (x)
Long Pits	4; 2; 3 (2)	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)	0; 1; 2 (0)
Scotney and Lydd West	57; 37; 66 (107)	0; 0; 0 (0)	155; 277; 112 (160)	286; 444; 471 (310)	2150; 1025; 918 (1000)	2; 11; 8 (7)
Scotney Pit	15; 25; 66 (x)	0; 0; 0 (x)	155; 277; 91 (x)	286; 444; 545 (x)	1452; 821; 750 (x)	2; 9; 16 (x)
Lydd West Gravel Pits	53; 24; 59 (x)	0; 0; 0 (x)	0; 0; 5 (x)	0; 9; 218 (x)	24; 297; 398 (x)	0; 2; 1 (x)

Appendix E, Table E.i. Five-year mean of peaks for the periods 1993/94 to 1997/98, 1998/99 to 2002/03 and 2003/04 to 2007/08 and Peak count over winter 2007/08 for each species for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Mute Swan to Gadwall.

	Teal	Mallard	Pintail	Shoveler	Pochard	Tufted Duck
Dungeness, Romney Marsh and Rye Bay SSSI	1207; 2104; 1112 (1258)	1445; 1137; 992 (869)	140; 156; 254 (133)	405; 638; 533 (581)	773; 776; 741 (598)	630; 677; 676 (777)
Rye Bay	409; 417; 418 (1002)	409; 388; 437 (520)	12; 7; 7 (20)	128; 175; 200 (340)	197; 196; 204 (151)	171; 211; 277 (283)
Rye Harbour	256; 170; 165 (320)	318; 281; 356 (354)	9; 7; 7 (20)	120; 154; 139 (118)	192; 189; 182 (132)	162; 186; 236 (247)
Rye Harbour - SSSI area	229; 160; 146 (270)	287; 273; 248 (231)	5; 7; 7 (20)	117; 154; 139 (118)	121; 105; 149 (131)	133; 160; 205 (224)
Camber and East Guldeford	65; 11; 30 (70)	66; 27; 148 (215)	11; 0; 0 (0)	21; 4; 11 (6)	116; 127; 61 (5)	41; 39; 38 (31)
Pett Level	164; 299; 202 (341)	171; 121; 80 (134)	6; 2; 4 (7)	33; 67; 62 (111)	10; 15; 17 (22)	13; 37; 43 (48)
Pett Level excluding Pannel Valley	97; x; x (x)	232; x; x (x)	0; x; x (x)	26; x; x (x)	2; x; x (x)	6; x; x (x)
Pannel Valley	66; x; x (x)	124; x; x (x)	2; x; x (x)	34; x; x (x)	0; x; x (x)	0; x; x (x)
Walland Marsh	675; 996; 376 (300)	360; 282; 226 (200)	121; 117; 142 (90)	342; 298; 102 (70)	31; 36; 24 (32)	56; 47; 24 (50)
Fairfield SSSI	x; 171; 102 (120)	x; 62; 65 (85)	x; 3; 1 (0)	x; 14; 7 (5)	x; 0; 0 (0)	x; 0; 0 (0)
Lade Sands	5; 1; 3 (0)	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)
Dungeness Gravel Pits	716; 886; 450 (307)	1018; 683; 556 (311)	26; 87; 130 (76)	283; 338; 418 (443)	605; 631; 575 (490)	532; 498; 423 (513)
Dungeness RSPB Reserve	712; 868; 395 (215)	772; 515; 386 (111)	25; 87; 129 (72)	272; 326; 361 (437)	413; 325; 328 (294)	386; 309; 337 (362)
Lade Pit	13; 18; 33 (25)	146; 140; 207 (170)	3; 0; 3 (4)	60; 26; 124 (185)	111; 170; 132 (180)	130; 125; 85 (210)
Bretts Pits	0; 0; 0 (0)	22; 11; 19 (17)	0; 0; 0 (0)	0; 4; 5 (0)	21; 13; 12 (25)	28; 10; 6 (5)
Whitehalls Gravel Pits	25; 8; x (x)	47; 42; x (x)	0; 0; x (x)	1; 0; x (x)	96; 24; x (x)	68; 21; x (x)
Long Pits	0; 1; 0 (0)	0; 3; 4 (7)	0; 0; 0 (0)	0; 1; 0 (0)	0; 0; 1 (0)	6; 7; 5 (4)
Scotney and Lydd West	6; 15; 51 (67)	92; 99; 84 (55)	3; 2; 7 (3)	9; 38; 48 (33)	200; 244; 234 (140)	64; 140; 126 (59)
Scotney Pit	5; 12; 37 (x)	73; 81; 79 (x)	3; 2; 12 (x)	8; 32; 32 (x)	200; 242; 367 (x)	64; 132; 208 (x)
Lydd West Gravel Pits	0; 5; 17 (x)	28; 45; 28 (x)	0; 0; 1 (x)	0; 7; 29 (x)	0; 23; 34 (x)	4; 21; 41 (x)

Appendix E, Table E.ii. Five-year mean of peaks for the periods 1993/94 to 1997/98, 1998/99 to 2002/03 and 2003/04 to 2007/08 and Peak count over winter 2007/08 for each species for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Teal to Tufted Duck.

	Goldeneye	Little Grebe	Great Crested Grebe	Cormorant	Moorhen	Coot
Dungeness, Romney Marsh and Rye Bay SSSI	43; 34; 35 (47)	58; 102; 111 (90)	325; 943; 692 (653)	259; 367; 523 (412)	124; 212; 184 (181)	1499; 2182; 2223 (2280)
Rye Bay	4; 6; 6 (5)	29; 56; 47 (37)	40; 144; 267 (115)	184; 164; 202 (133)	96; 132; 146 (228)	587; 809; 836 (940)
Rye Harbour	3; 6; 4 (5)	29; 55; 49 (29)	21; 41; 47 (46)	174; 162; 170 (114)	68; 71; 62 (80)	552; 673; 644 (754)
Rye Harbour - SSSI area	4; 6; 3 (5)	21; 36; 25 (20)	20; 40; 44 (44)	184; 159; 162 (113)	45; 55; 51 (60)	525; 587; 505 (530)
Camber and East Guldeford	1; 1; 1 (0)	16; 22; 26 (11)	11; 4; 6 (4)	45; 27; 39 (60)	25; 22; 24 (32)	84; 131; 187 (225)
Pett Level	0; 0; 0 (0)	1; 4; 7 (5)	24; 101; 149 (64)	19; 6; 12 (39)	36; 84; 69 (82)	64; 194; 299 (186)
Pett Level excluding Pannel Valley	0; x; x (x)	1; x; x (x)	2; x; x (x)	15; x; x (x)	23; x; x (x)	52; x; x (x)
Pannel Valley	0; x; x (x)	1; x; x (x)	0; x; x (x)	2; x; x (x)	20; x; x (x)	20; x; x (x)
Walland Marsh	0; 0; 0 (0)	10; 14; 14 (22)	0; 3; 3 (7)	12; 12; 9 (10)	41; 25; 1 (0)	294; 190; 96 (50)
Fairfield SSSI	x; 0; 0 (0)	x; 5; 2 (2)	x; 0; 0 (0)	x; 3; 2 (2)	x; 12; 10 (7)	x; 11; 12 (10)
Lade Sands	0; 0; 0 (0)	0; 0; 0 (0)	296; 818; 590 (630)	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)
Dungeness Gravel Pits	42; 30; 34 (42)	19; 54; 68 (49)	50; 62; 64 (83)	153; 259; 374 (327)	34; 74; 70 (39)	998; 1486; 1501 (1621)
Dungeness RSPB Reserve	32; 23; 26 (39)	11; 40; 52 (29)	39; 36; 39 (59)	149; 226; 358 (325)	30; 55; 48 (21)	655; 801; 1132 (1337)
Lade Pit	12; 10; 11 (7)	4; 8; 17 (12)	7; 19; 27 (20)	9; 14; 18 (0)	10; 17; 17 (14)	190; 188; 106 (135)
Bretts Pits	1; 0; 0 (0)	0; 1; 2 (1)	2; 3; 10 (20)	6; 12; 22 (6)	10; 8; 12 (16)	17; 48; 38 (12)
Whitehalls Gravel Pits	1; 0; x (x)	1; 5; x (x)	4; 2; x (x)	0; 1; x (x)	1; 3; x (x)	96; 52; x (x)
Long Pits	0; 0; 0 (0)	1; 1; 1 (1)	0; 0; 0 (0)	0; 0; 0 (0)	4; 7; 10 (8)	71; 46; 28 (35)
Scotney and Lydd West	0; 2; 1 (0)	15; 14; 20 (18)	8; 15; 10 (5)	19; 47; 16 (18)	1; 3; 5 (3)	316; 611; 552 (320)
Scotney Pit	0; 0; 1 (x)	5; 7; 9 (x)	8; 15; 14 (x)	19; 47; 13 (x)	1; 3; 6 (x)	316; 592; 546 (x)
Lydd West Gravel Pits	1; 2; 2 (x)	7; 8; 10 (x)	0; 1; 2 (x)	1; 1; 9 (x)	2; 1; 2 (x)	0; 63; 132 (x)

Appendix E, Table E.iii. Five-year mean of peaks for the periods 1993/94 to 1997/98, 1998/99 to 2002/03 and 2003/04 to 2007/08 and Peak count over winter 2007/08 for each species for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Goldeneye to Coot.

	Golden Plover	Lapwing	Sanderling
Dungeness, Romney Marsh and Rye Bay SSSI	5430; 4767; 5122 (7210)	16702; 15673; 11553 (12758)	457; 338; 232 (219)
Rye Bay	434; 415; 1092 (1540)	4952; 4060; 4443 (5205)	167; 131; 118 (164)
Rye Harbour	386; 130; 873 (550)	3522; 2600; 3607 (2997)	167; 127; 102 (164)
Rye Harbour - SSSI area	37; 52; 328 (550)	1010; 1726; 1192 (500)	46; 127; 89 (164)
Camber and East Guldeford	498; 104; 614 (213)	3112; 1639; 2925 (2497)	88; 29; 23 (0)
Pett Level	60; 323; 355 (640)	1664; 2150; 1017 (1104)	0; 27; 0 (0)
Pett Level excluding Pannel Valley	2; x; x (x)	2566; x; x (x)	0; x; x (x)
Pannel Valley	14; x; x (x)	50; x; x (x)	0; x; x (x)
Walland Marsh	2150; 2840; 4460 (7000)	11650; 10860; 6740 (9000)	0; 0; 0 (0)
Fairfield SSSI	x; 536; 112 (240)	x; 1245; 1057 (1690)	x; 0; 0 (0)
Lade Sands	1; 0; 0 (0)	0; 0; 0 (0)	457; 245; 177 (206)
Dungeness Gravel Pits	3000; 1797; 805 (500)	4277; 2809; 1562 (1600)	0; 0; 0 (0)
Dungeness RSPB Reserve	131; 540; 132 (0)	1403; 1207; 817 (1100)	0; 0; 0 (0)
Lade Pit	0; 0; 0 (0)	0; 11; 92 (0)	0; 0; 0 (0)
Bretts Pits	30; 67; 26 (5)	50; 167; 120 (50)	0; 0; 0 (0)
Whitehalls Gravel Pits	5000; 163; x (x)	1500; 338; x (x)	0; 0; x (x)
Long Pits	0; 0; 0 (0)	0; 0; 0 (0)	0; 0; 0 (0)
Scotney and Lydd West	706; 1160; 652 (500)	1920; 1250; 820 (500)	0; 0; 0 (0)
Scotney Pit	706; 1160; 300 (x)	1920; 1190; 500 (x)	0; 0; 0 (x)
Lydd West Gravel Pits	0; 0; 0 (x)	5; 80; 50 (x)	0; 0; 0 (x)

Appendix E, Table E.iv. Five-year mean of peaks for the periods 1993/94 to 1997/98, 1998/99 to 2002/03 and 2003/04 to 2007/08 and Peak count over winter 2007/08 for each species for each WeBS count section of the Dungeness, Romney Marsh and Rye Bay SSSI. Waders.