

A photograph of two white-capped albatrosses on a grassy cliffside. The birds are facing each other, with one bird's beak touching the other's. They have white heads and necks, and dark grey wings and backs. The background consists of green grass and a dark blue body of water.

**Aerial Survey of White-capped albatross,
Auckland Islands**

Contract 4523/4524.

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Latitude 42 Environmental Consultants**

background

— endemic NZ species



— Auckland Islands

Disappointment Island (110 000 pairs)

SW Cape (3 000 pairs)

Adams Island (100 pairs)

— Antipodes Islands

Bollons Island (50-100 pairs)

background

- in 2006 we commenced annual photographic counts of WCA colonies in the Auckland Islands
- population estimates have been derived for 2006 – 2012
- results so far show high inter-annual variability in counts

Project Aims

1. conduct another aerial survey of WCA in the Auckland Islands in January 2014
2. determine population trend
also (reported elsewhere)
3. aerial photos of NZSL pups on Enderby Island & Dundas Island; &
4. provide aerial (helicopter) support for other researchers to access Dundas Island

methods

- Photo surveys of WCA colonies in Auckland Is
 - December 2006 – 2010 early incubation
 - January 2011 – 2013 late incubation
- digital Nikon cameras & lenses
- aerial platform Squirrel Helicopter



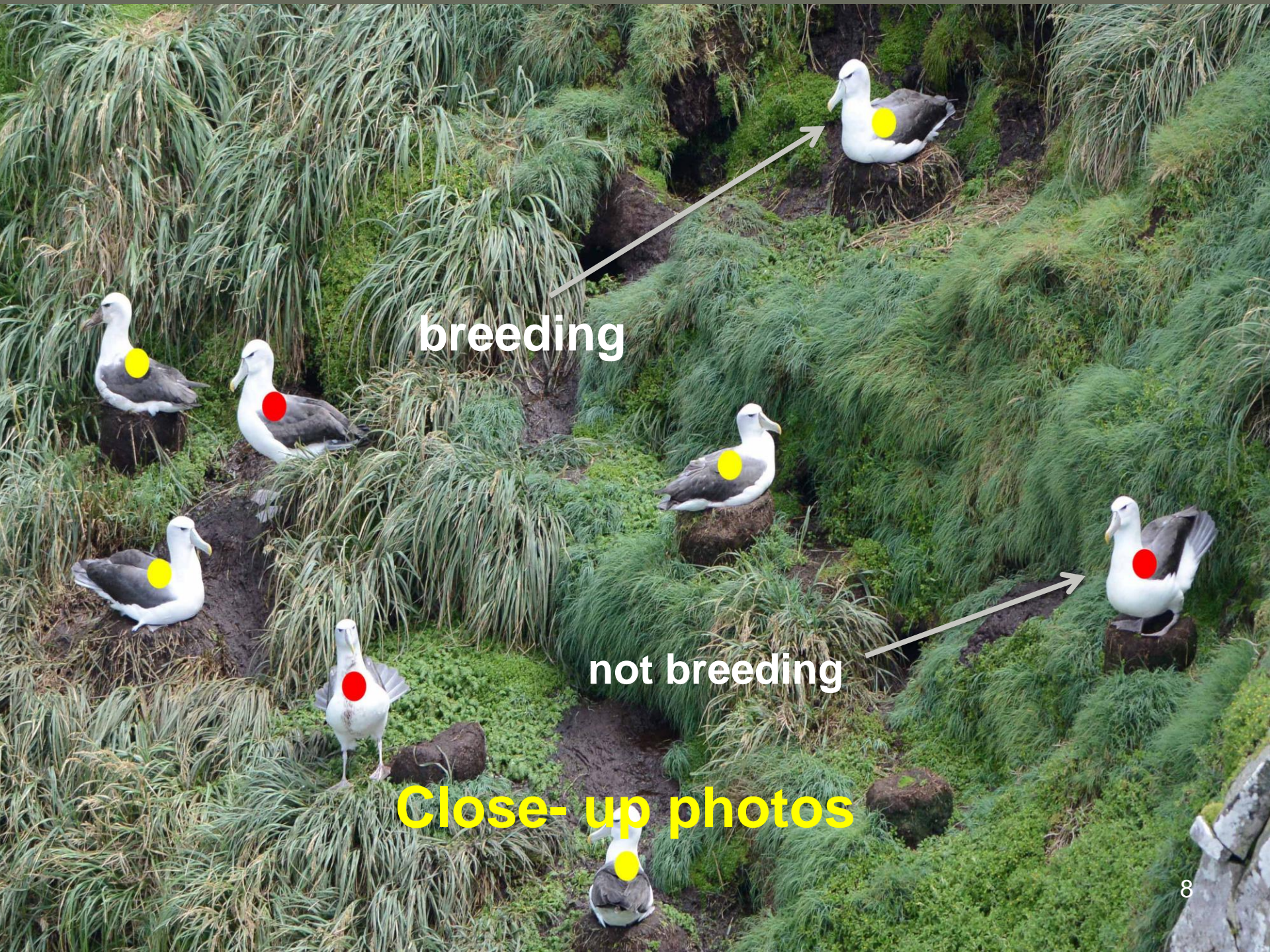
2 groups of photos

- series of overlapping photos of all areas with nesting birds (70 mm)
- close-up photos to examine proportion of empty nests & non-breeding birds (200 or 300 mm)



c. 3,000 photos taken each year,
year saved as fine jpeg files
No impact on birds detected





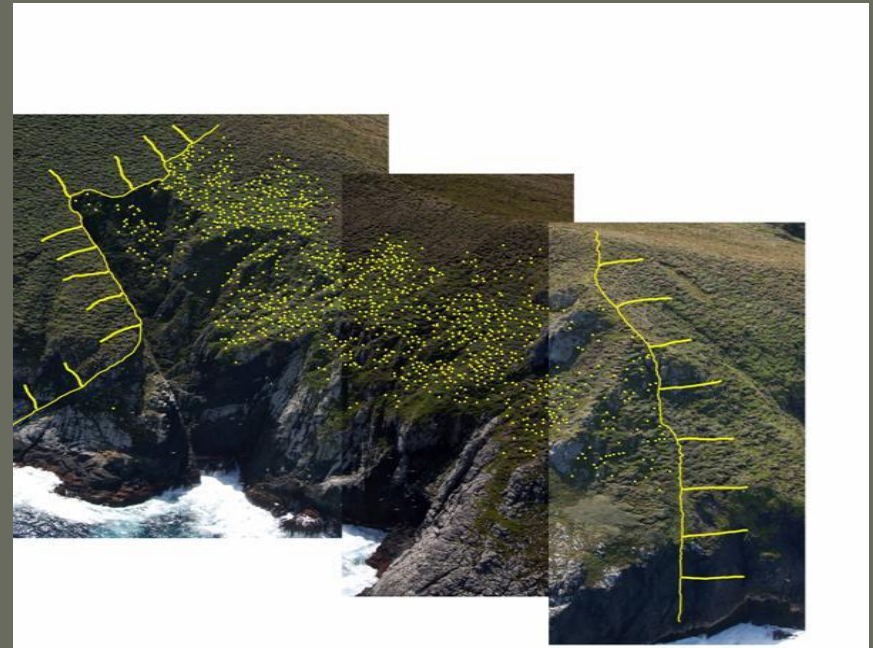
breeding

not breeding

Close-up photos

counting protocol

- photomontages constructed using Adobe Photoshop software
- paintbrush tool mark off counted birds



data assessment

- all birds on the ground counted.
- each single bird assumed to represent a an annual breeding pair.
- close up photos used to determine proportion of birds breeding & not breeding
- all images counted by one observer
- repeat counts of randomly selected montages by 2 other observers in previous years has confirmed no evidence of observer bias in counting

photographic data storage

- photographs submitted to Department of Conservation for archiving
- photos provided in one directory
 - White-capped albatross 2013* with three sub-directories
 - *Original photos*
 - *Stitched images*
 - *Counted images*
- set of photographs also retained by Latitude 42

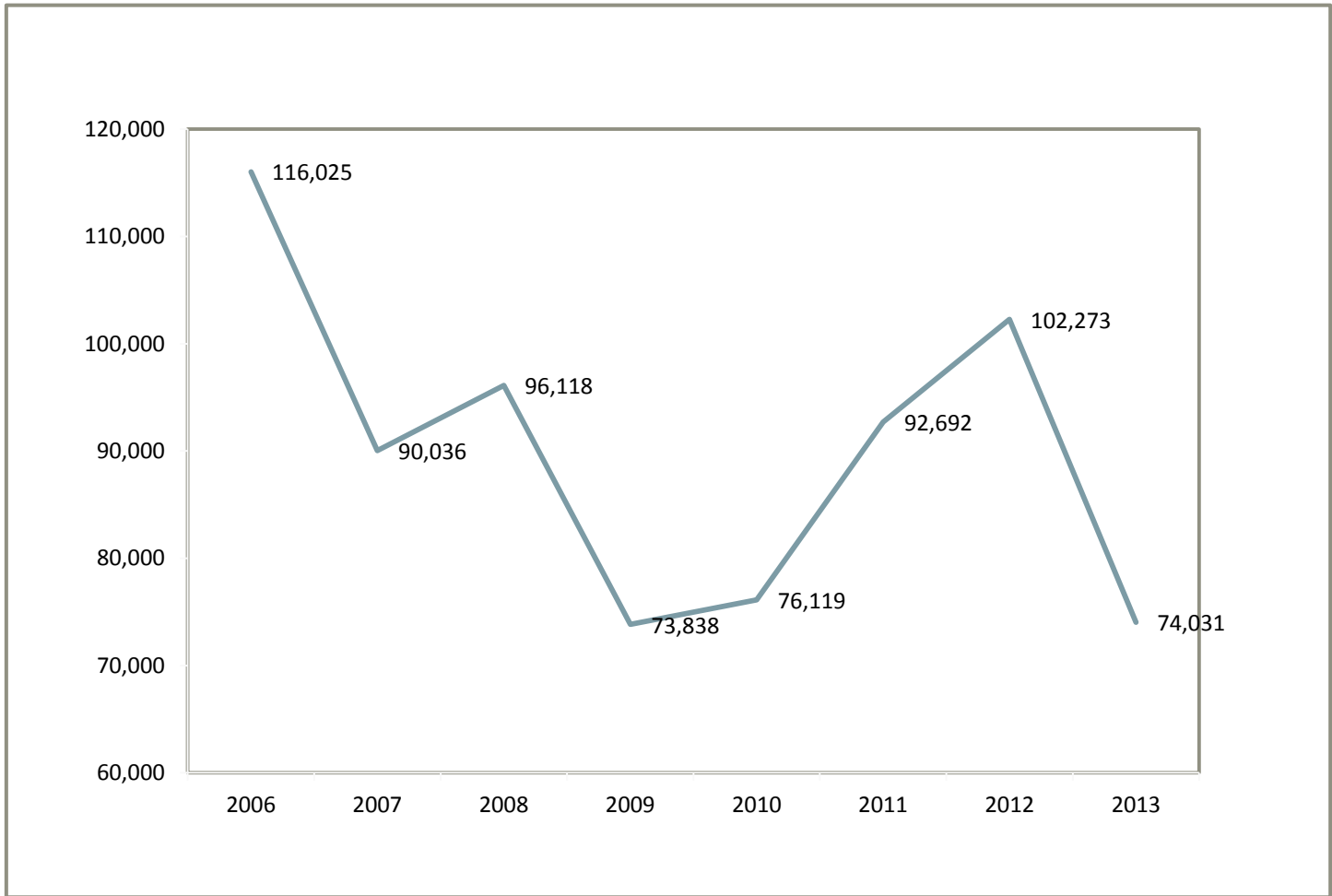
raw counts

Year	Adams	SW Cape	Disappoint	Total
2006	no count	6,548	110,649	117,197
2007	79	4,786	86,080	90,945
2008	131	5,264	91,694	97,089
2009	132	4,161	70,569	74,862
2010	117	4,370	72,635	77,122
2011	178	5,8462	93,752	99,776
2012	215	6,571	111,312	118,098
2013	184	5,542	89,552	95,278

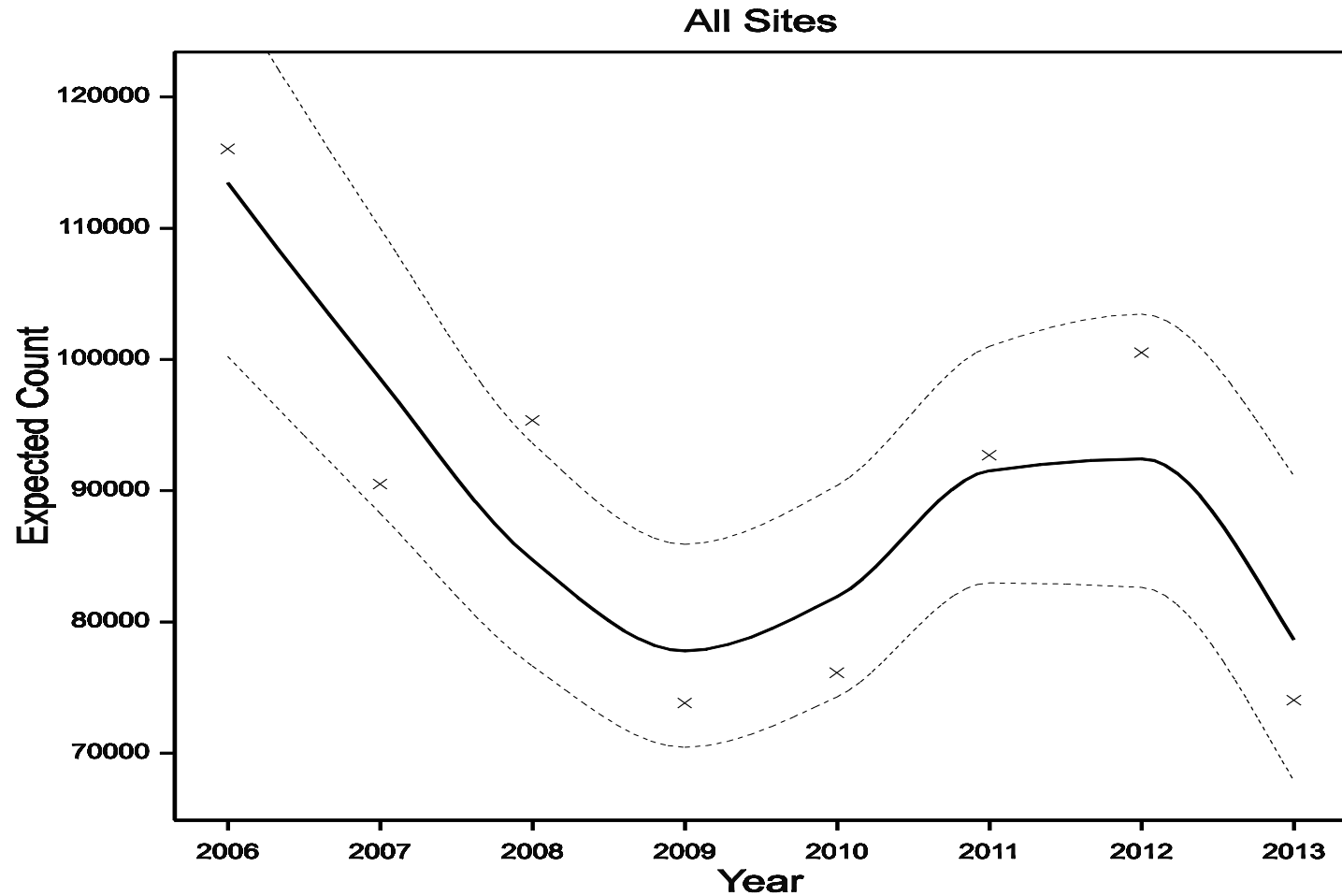
close up counts

Year	On nest	Not on nest	Non breeders%
2006			?
2007	805	4	1%
2008	1 590	29	2%
2009	937	13	1%
2010	607	8	1%
2011	1 007	77	7%
2012	1 096	169	15%
2013	860	247	22%

WCA total counts - adjusted

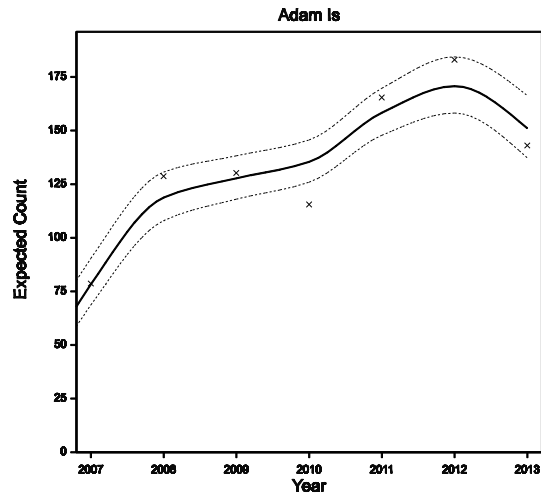
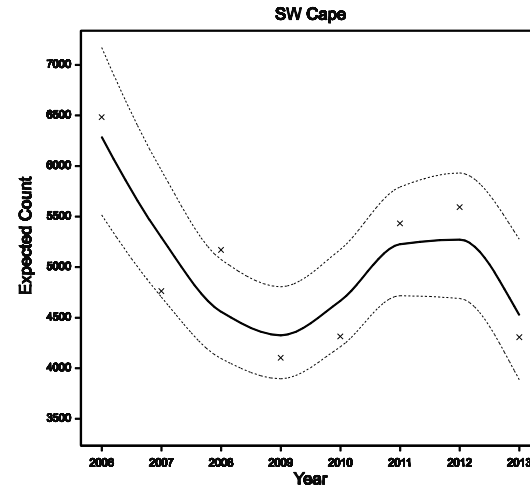
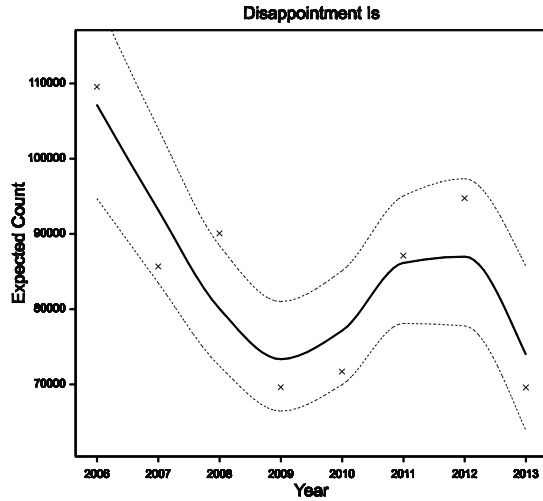


WCA trend – regression splines



Interpretation: no evidence for systematic monotonic decline

WCA trend – 3 sites. Regression splines



population trend

- Assessed using TRIM software
(TRends & Indices for Monitoring Data).
- Standard ACAP tool using log-linear regression models
- average growth rate of -3.16% per year
- moderate decline - significant decline, but not significantly more than 5% per year.

Pannekoek and van Strien, 1996