

## S2: README for Table S1

### Column Headers

Name: location name

Lat: latitude (decimal degrees; WGS1984)

Lon: longitude (decimal degrees; WGS1984)

Region:

1=Antarctic Peninsula/South Shetland Islands

0=South Orkney Islands

Trend\_code:

0=most recent count, used in population total

1=historical (<1995/96 when current count is >=2005/06), used in decadal analysis

2=trend (when >10 counts were available), displayed in Figure 2B-K

Count\_Date: date of count

Count\_Season: season of count (the year that season started, i.e. 1995 represents 1995/96)

Count\_Type:

N=active nests or breeding pairs present

A=adults present

C=chicks present

Count: reported count

Accuracy:

1: < 5%

2: 5-10%

3: 10-25%

4: 25-50%

5: order of magnitude

UNK: not reported (conservatively assumed 4)

Data\_Source: citation (see full list below)

Pop\_Estimate: population estimate derived from the count. Chick counts were divided by 1.7; adult counts were divided by 1.5. Any calculations rounded to the nearest integer.

Comments: Relevant comments

### Citations

BAS unpublished data

British Antarctic Survey. Contact: Michael Dunn mdunn@bas.ac.uk

Bruce and Furse 1973; cited in Harris et al. 2011

BRUCE, G. & FURSE, C. 1973. Elephant Island Joint Services Expedition 1970 - 71. Ornithological Report.

BAS Archives Doc. 1999/33/45.

Casanovas et al. 2015

CASANOVAS, P., NAVEEN, R., FORREST, S., PONCET, J. & LYNCH, H. 2015. A comprehensive coastal seabird survey maps out the front lines of ecological change on the western Antarctic Peninsula. Polar Biology, 1-14, 10.1007/s00300-015-1651-x.

Casaux and Barrera-Oro 2016

CASAUX, R. & BARRERA-ORO, E. 2016. Linking population trends of Antarctic shag (*Phalacrocorax bransfieldensis*) and fish at Nelson Island, South Shetland Islands (Antarctica). *Polar Biology*, 39, 1491-1497, 10.1007/s00300-015-1850-5.

Coria et al. 2011

CORIA, N.R., MONTALTI, D., ROMBOLA, E., SANTOS, M.M., GARCIA BETOÑO, M.I. & JUARES, M.A. 2011. Birds at Laurie Island, South Orkney Islands, Antarctica: breeding species and their distribution. *Marine Ornithology*, 39, 207-213.

W. Fraser unpublished data:

Contact: bfraser@3rivers.net

Harris 2006

HARRIS, C.M. 2006. *Wildlife Awareness Manual: Antarctic Peninsula, South Shetland Islands, South Orkney Islands*. Cambridge: Environmental Research & Assessment, 136 pp.

Harris et al. 2011

HARRIS, C., CARR, R., LORENZ, K. & JONES, S. 2011. Important Bird Areas in Antarctica: Antarctic Peninsula, South Shetland Islands, South Orkney Islands-final report. Prepared for BirdLife International and the Polar Regions Unit of the UK Foreign & Commonwealth Office. Environmental Research & Assessment Ltd., Cambridge: 225 pp.

Heimark and Heimark 1988

HEIMARK, G. & HEIMARK, R. 1988. Observations of birds and marine mammals at Palmer Station November 1985 to November 1986. *Antarctic Journal of the United States*, 23, 14-17.

Lynch et al. 2013

LYNCH, H.J., NAVEEN, R. & CASANOVAS, P. 2013. Antarctic Site Inventory breeding bird survey data, 1994-2013. *Ecology*, 94, 2653-2653, 10.1890/13-1108.1.

H. Lynch unpublished data

Antarctic Site Inventory data not yet available from published sources. Contact: heather.lynch@stonybrook.edu

Petry et al. 2016

PETRY, M.V., VALLS, F.C.L., PETERSEN, D.S.E., KRÜGER, L., PIUCO, D.C.R. & DOS SANTOS, C.R. 2016. Breeding sites and population of seabirds on Admiralty Bay, King George Island, Antarctica. *Polar Biology*, 39, 1343-1349, 10.1007/s00300-015-1846-1.

Poncet archival data

S. PONCET & J. PONCET archival data, referenced in Harris 2006 and Harris et al. 2011. Contact: sallyponcet@horizon.co.fk

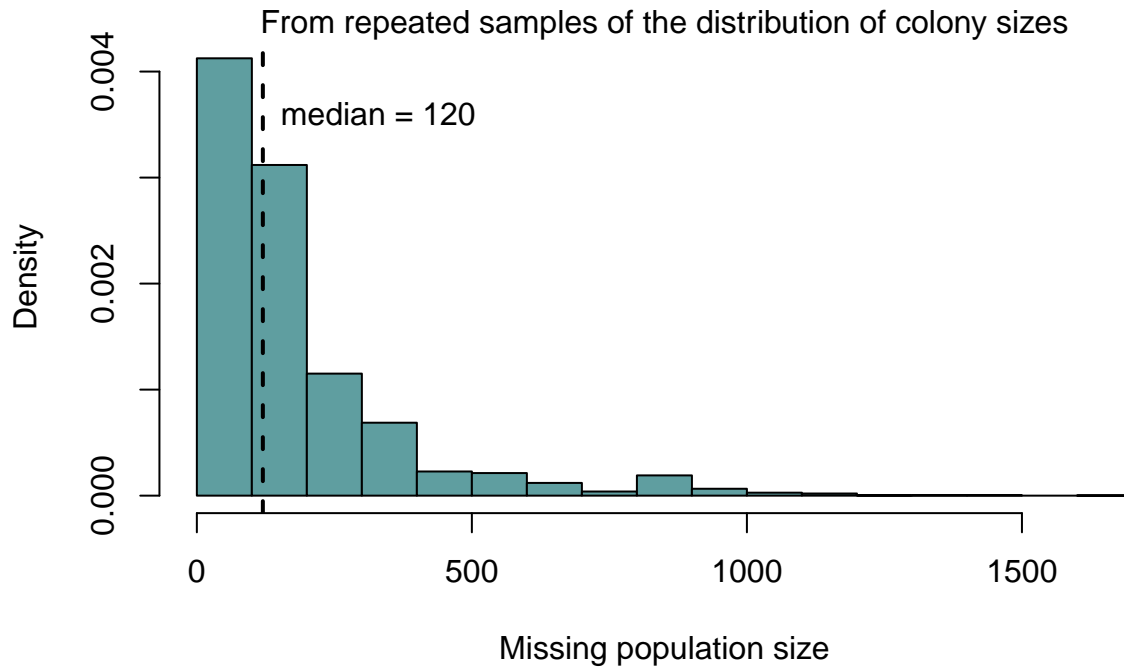
\* Several references in the Poncet's database contain personal communications from others, which are identified as such in the citation. There were also several records with numbered references for which the associated key no longer exists - these may be published or unpublished and are identified in the citation as "unknown source cited in Poncet data"

Shuford and Spear 1988

SHUFORD, W.D. & SPEAR, L.B. 1988. Surveys of breeding penguins and other seabirds in the South Shetland Islands, Antarctica, January-February 1987. Technical Memorandum NMFS-F/NEC-59. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Center, Woods Hole, Massachusetts: 27 pp.

### S3: Missing population bootstrap

#### Probability density of missing Antarctic shag population



# S4: Colony size distribution

## Size distribution of colonies

