Anseriformes
Taxon Advisory Group
March 23, 2014

Agenda

I. TAG Overview
II. TAG Program Updates
III. RAFT Update
IV. Call for Volunteers
V. General Discussions

Anseriformes TAG Management Committee

Chair:
Keith Lovett
Buttonwood Park Zoo

Vice Chair:
Steve Sarro
National Zoo

Secretary:
Jackie Peeler
Henson Robinson Zoo

Michael Macek
St. Louis Zoo

Sherry Branch
SeaWorld Orlando

Dave Orndorff
Ross Park Zoo

Sunny Nelson
Lincoln Park Zoo

Dave Quavillon
Brevard Zoo

Tammy Stanton
Bush Gardens Tampa

Jamie Ries
Minnesota Zoo

Yvonne Stainback
Caldwell Zoo

Chuck Cerbino
Toledo Zoo

Ann Konopik
Salisbury Zoo

Anseriformes TAG Advisors

Veterinary Advisor:
Kim Cook, DVM
Akron Zoo

Private Sector Advisor:
Mike Lubbock
Sylvan Heights Waterfowl

Editor:
Julia Ecklar
National Aviary

Behavior:
Stephanie Allard
Detroit Zoo

Education:
Vacant

SSP Yellow

White-wing Wood Duck
Kim Cook, DVM
Akron Zoo

African Pygmy Goose
Stephanie Allard
Detroit Zoo

Indian Pygmy Goose
Stephanie Allard
Detroit Zoo

Swan Goose
Mark O'Berry
Disney's Animal Kingdom

Nene Goose
Ken Reininger
North Carolina Zoo

Crested Screamer
Mike Macek
Saint Louis Zoo

Coscoroba Swan
Ann Konopik
Salisbury Zoo

Marbled Teal
Harrison Edell
Sacramento Zoo

Regional Studbook Red Program

West Indian Whistling Duck
Gwen Harris
Oregon Zoo

Spotted Whistling Duck
Ian Shelley
Salisbury Pak Zoo

Orinoco Goose
Kayla Hanada
Sacramento Zoo

Trumpeter Swan
Matt McKim
Sacramento Zoo

Red-breasted Goose
Laurie Conrad
SeaWorld San Diego

Madagascar Teal
Craig Mikel
Louisville Zoo


Marbled Teal SSP
Harrison Edell

Marbled Teal SSP

Most recent SSP finalized Jan 2014:

1. Managed population includes 192 (97.95.00) birds, among 34 (30 AZA, 4 non-AZA) institutions. Six of these institutions are new as of this plan.

2. Pedigree (as a result of incorporation of MULT parent sets) is 92% known. However, MULT sets preclude us from using many of our standard genetic calculations (including genetic diversity maintained). We will minimize inbreeding, but the program will be perpetually "Yellow."

3. Captive North American population peaked in 1997 at 214 birds; increased institutional interest and successful reproduction indicates that we will reach that point again soon. Population target (used for this analysis) is 250.

4. No specific management needs for this population, but I encourage any institutions interested in adding this species to their collection to contact me.

Marbled Teal SSP

Conservation Update:

1. Despite "rapid population decline" (per IUCN), species is still listed as Vulnerable, with a wild population of 50-55,000 birds.

2. In situ: Project surveys were conducted by Nature Iraq, concluding in 2010 (they found ~44,000 teal!). NI has since identified several Key Biodiversity Areas which hold wintering flocks; these are to be designated as protected areas. Awareness-raising efforts were recently carried out in Iraq, including conferences and meetings with influential hunting societies and presentation of posters advertising the species' plight.

Marbled Teal SSP

Conservation Update:

3. Ex situ: Future research interests focus on gaining a better understanding of genetics among geographic subpopulations. It is unclear at this time how genetically distinct each population is. While the geographic origin of our captive population is completely unknown, it seems logical that our birds are likely hybrids from eastern Mediterranean, western Mediterranean, and Asian subpopulations. That being said, I'm starting to look at opportunities to assess the variation between these three wild populations, with a future goal of examining captive stock. It will be impossible to refine the role of our captive population relative to ongoing conservation efforts without more information on the geographic origins of our birds.

Coscoroba Swan SSP
Ann Konopik

Coscoroba Swan SSP
Ann Konopik

Living Population 36.40.14 (90) at 35 Institutions

Single swan, same sex pairs, and a breeding pair available for placement

AZA Anseriformes TAG

Crested Screamer (*Chauna torquata*)
Yellow SSP Program
SSP Manager and Studbook Keeper: Michael Macek, Saint Louis Zoo
Current Population: 52/51/4 (107) in 50 institutions
Gene Diversity: 95.24% currently with projected 86.92% in 100 years
Target Population: 150
Studbook Published: 2013
Population Analysis & Breeding and Transfer Plan Published: 2012

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AZA Anseriformes TAG

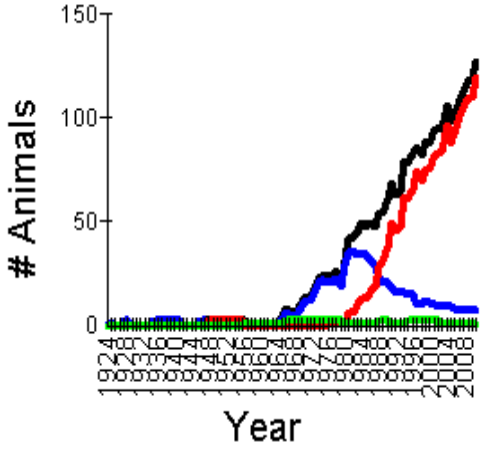
Crested Screamer (*Chauna torquata*)

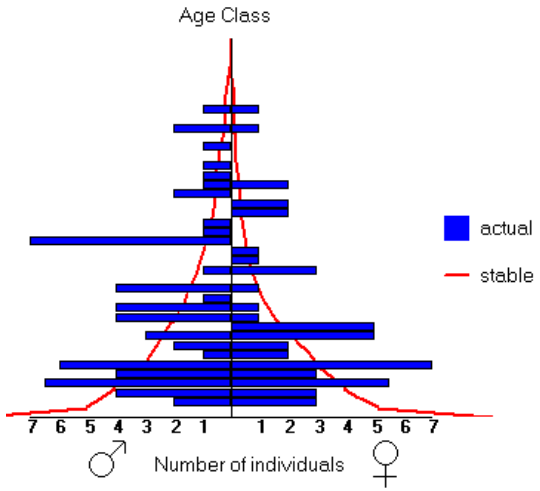
Age structure approximates a stable population.

Crested screamers can live up to 39 years of age.

Over the period of 1982 - 2012 the population has demonstrated a growth rate of 4.9% annually.

There is potential to increase this population and potentially reach a "**green**" status .





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AZA Anseriformes TAG

Crested Screamer (*Chauna torquata*)

Growth Potential: The last TAG space survey identified 150 potential screamer spaces. Due to the lack of new institutions joining the SSP over the last few years, the population is being managed to maintain the current population size of approximately 100 individuals.

If you are interested in adding screamers to your collection, please contact Michael Macek at Macek@stlzoo.org, 314-646-4825

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African Pygmy Goose SSP

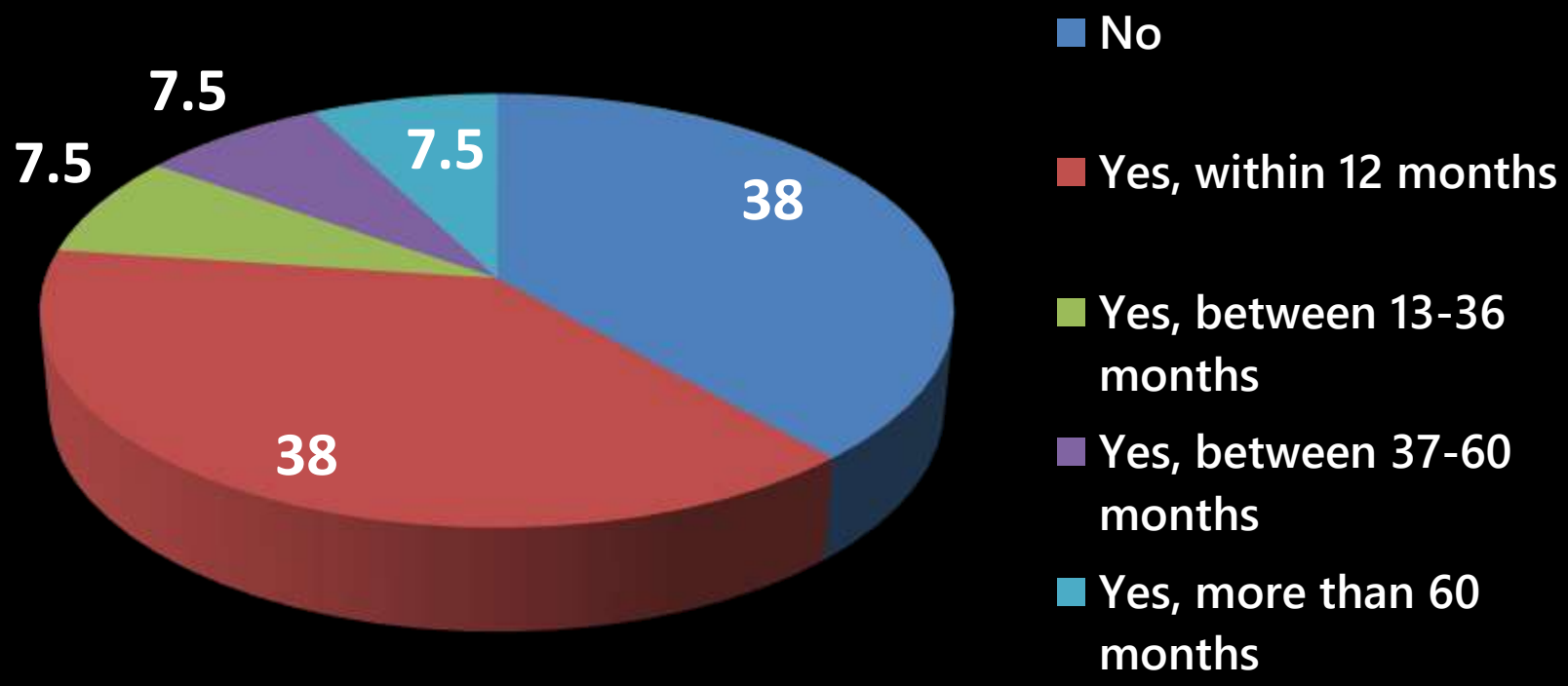
- 41.46.3 in 27 institutions

- Relatively low reproductive success, especially due to poor offspring survival rates
- Breeding & Transfer Plan meeting with PMC in December

Survey Results

- 13 respondents
- Even mix of indoor/outdoor exhibits
  - Most heavily planted, containing water features of various sizes and types
- Diets consist primarily of Mazuri waterfowl (breeder and maintenance), millet, finch seed, greens, insects. Duckweed as enrichment or additions during breeding/chick rearing
- Health issues not common
  - Reported include poor feather quality, instances of bumblefoot, Aspergillosis
- Seem fairly sensitive to humans in close proximity

Breeding Success



Nest Boxes

- Large variety being used successfully, at variety of locations/elevations
  - Hollow logs
  - Porch boxes
  - Tunnel boxes

Mixed Species

African black crake	Cinnamon teal
African jacana	Common shelduck
African white-backed duck	Crested wood partridge
African yellowbill	Egyptian plover
Barbary partridge	Elegant crested tinamou
Black-chinned fruit doves	Emerald starlings
Black-necked stilt	Fairy bluebird
Bleeding heart dove	Falcated duck
Blue and gold macaw	Finches (various)
Blue dacnis	Freckled duck
Blue whistling thrush	Gold-breasted starlings
Blue-bellied roller	Golden weavers
Blue-gray tanagers	Green naped pheasant pigeon
Cape thick-knee	Green peafowl
Chestnut weavers	Green winged teal

Mixed Species

Green woodhoopoes	Masked lapwing
Hooded pitta	Mousebirds
Hottentot teal	Nene goose
Inca tern	North American ruddy duck
Indian pygmy goose	Oriole warbler
Jambu fruit doves	Pink pigeons
Japanese bantam rooster	Pink-eared duck
Lesser Bahama pintail	Plumed whistling ducks
Lilac-crowned amazons	Plum-headed parakeets
Long-tailed glossy starlings	Radiated tortoises
Madagascar crested ibis	Radjah shelducks
Madagascar teal	Red bird of paradise
Mandarin ducks	Red-crested turaco
Marbled teal	Redhead
Marianas fruit dove	Red-legged honeycreeper

Mixed Species

Ringed teal
Roseate spoonbill
Rosybill pochard
Ruddy shelducks
Shama thrush
Snowy-crowned robin-chat
Speckled pigeon
Spur-winged lapwings
Sulawesi green imperial pigeon
Sunbittern
Superb starlings
Toco toucans
Victoria crowned pigeons
Village weavers
Violet turacos
West African long-tailed hornbill
White bellied bustard
White-cheeked turacos
White-faced whistling ducks
White-fronted amazons

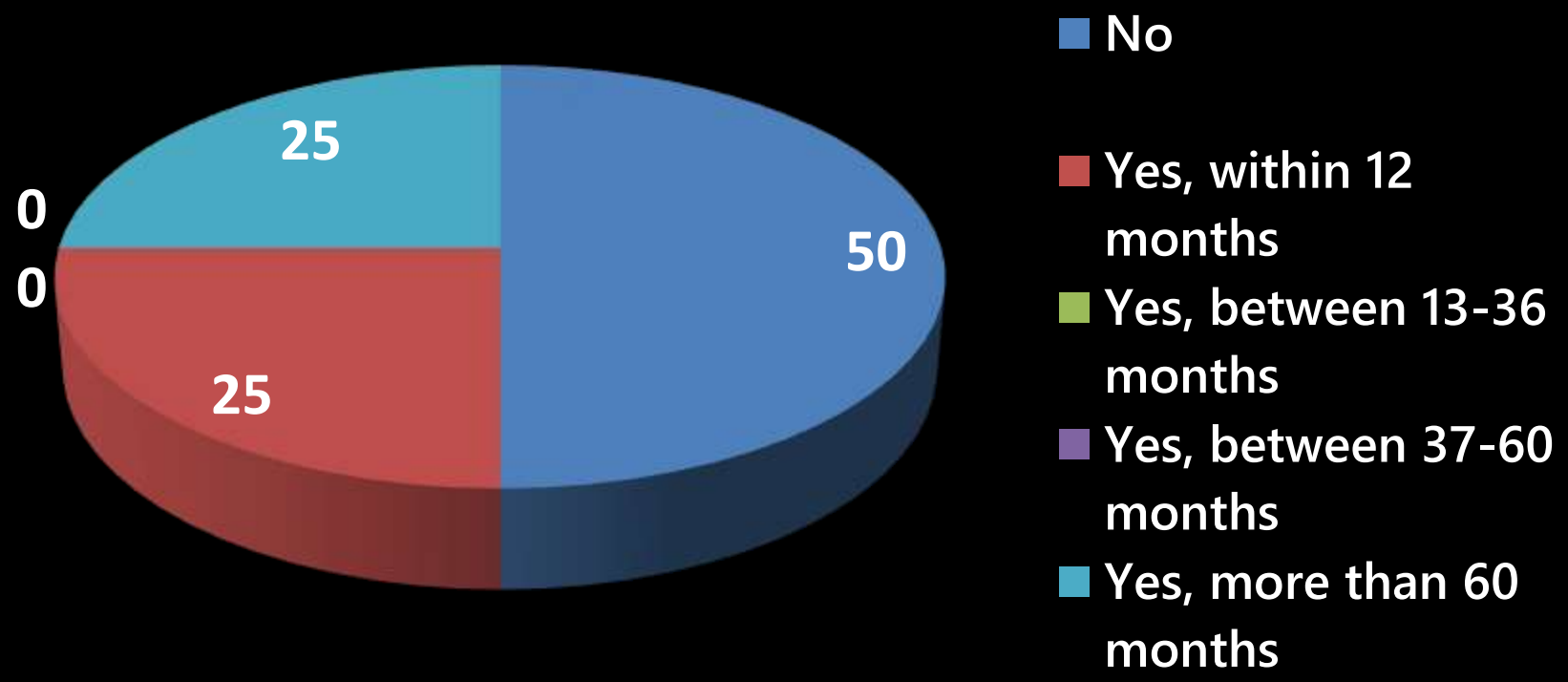
Indian Pygmy Goose SSP

- 23.23.8 in 16 institutions
- Low reproductive success overall, low hatch survival rates
- Breeding & Transfer Plan meeting with PMC in December

Survey Results

- 4 respondents
- Even mix of indoor/outdoor exhibits
  - Most heavily planted, containing water features of various sizes and types
- Diets consist primarily of Mazuri waterfowl (breeder and maintenance), finch seed, gamebird crumble, greens, and insects. Duckweed as enrichment or additions during breeding/chick rearing
- Health issues not reported

Breeding Success

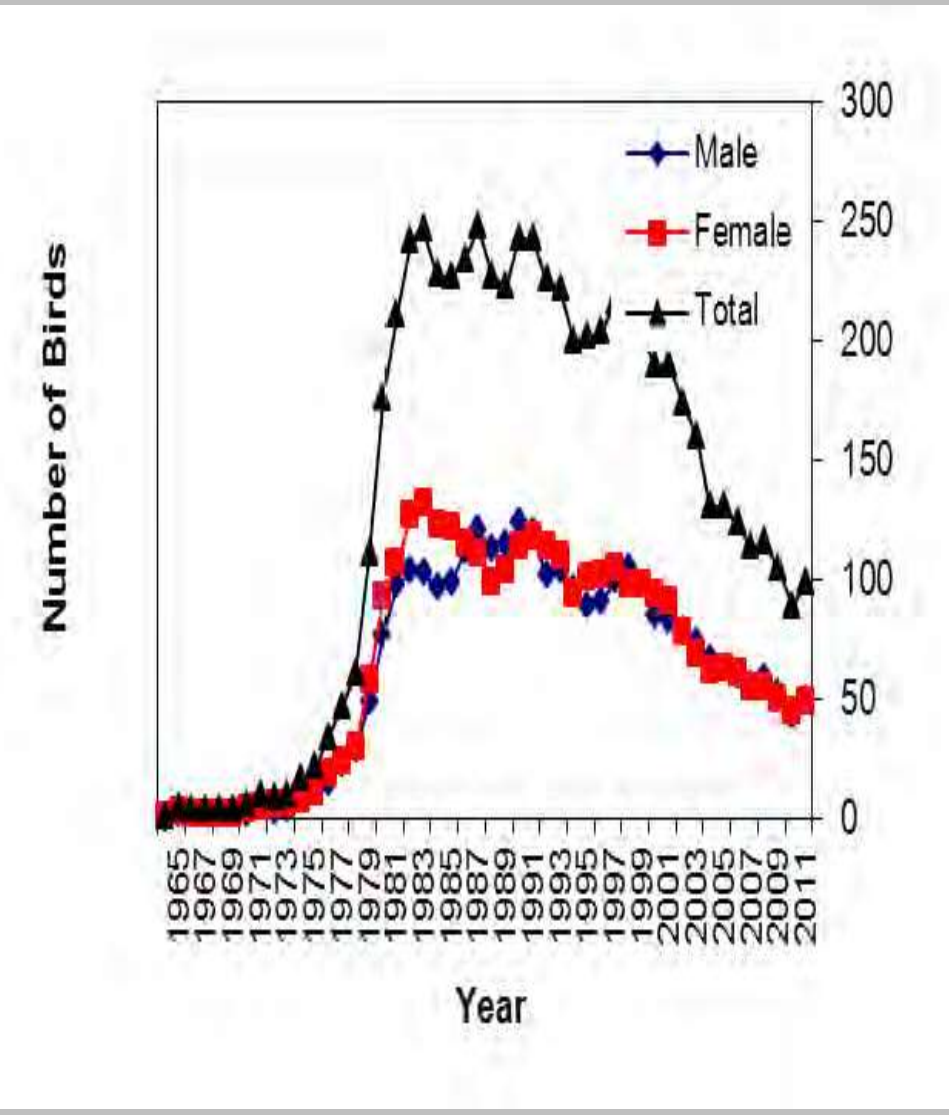


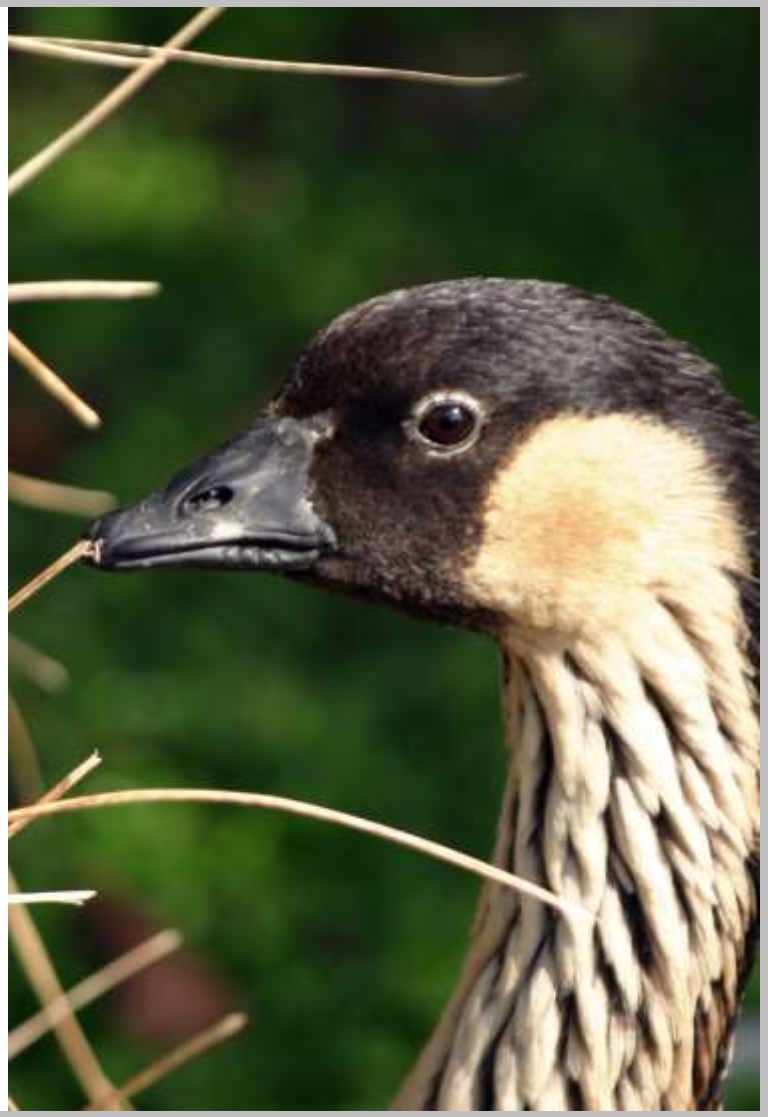
Mixed Species

African black crake	Metallic starling
African pygmy goose	Nicobar pigeon
Azure-winged magpie	Palawan peacock pheasant
Bali mynah	Passerines (various)
Cranes (various)	Spotted whistling duck
Crested wood partridge	Storks (various)
Green-winged dove	Swamphens
Herons (various)	Victoria crowned pigeon
Malayan chevrotain	Waterfowl (various)
Marbled teal	White breasted kingfisher
Masked lapwing	

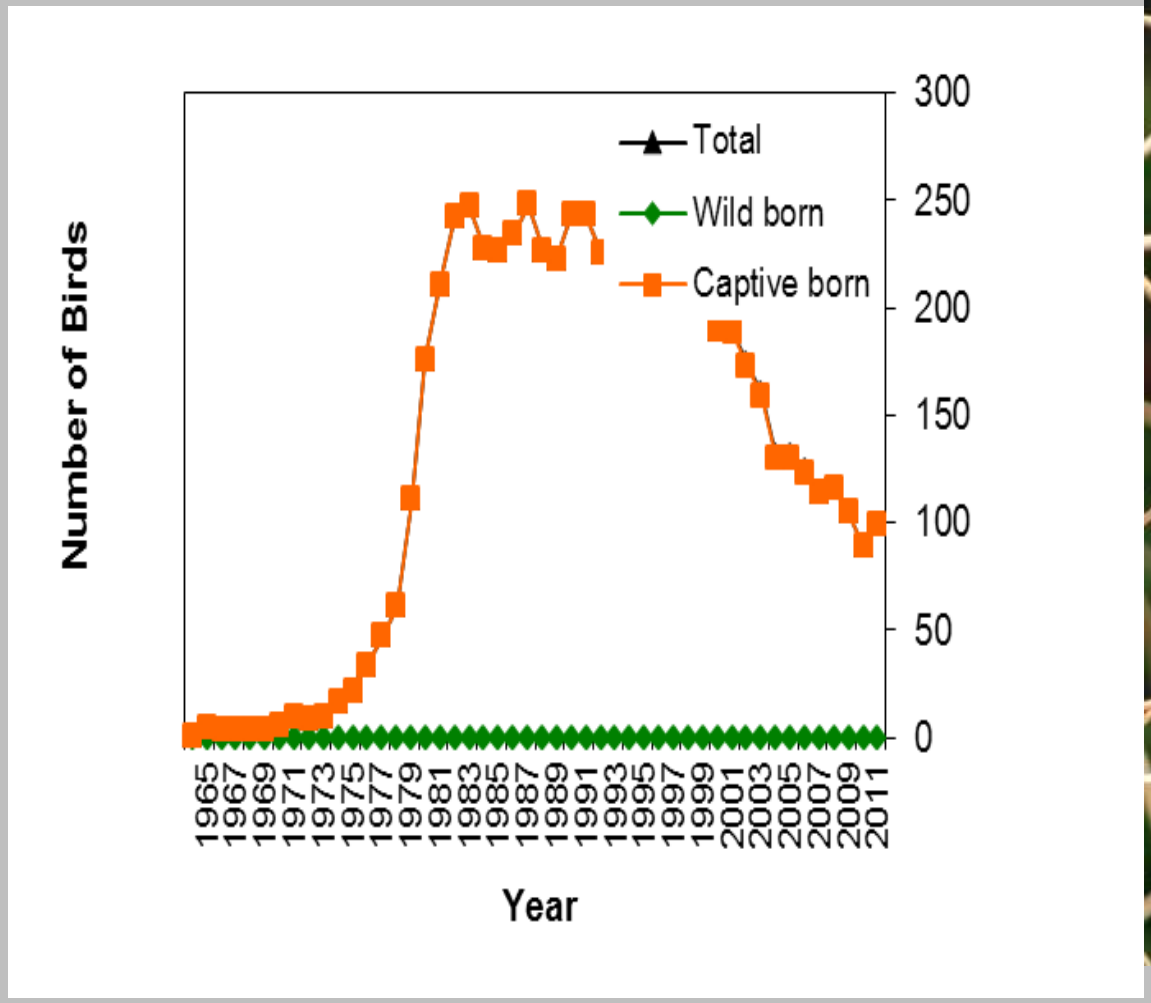
Nene Goose SSP

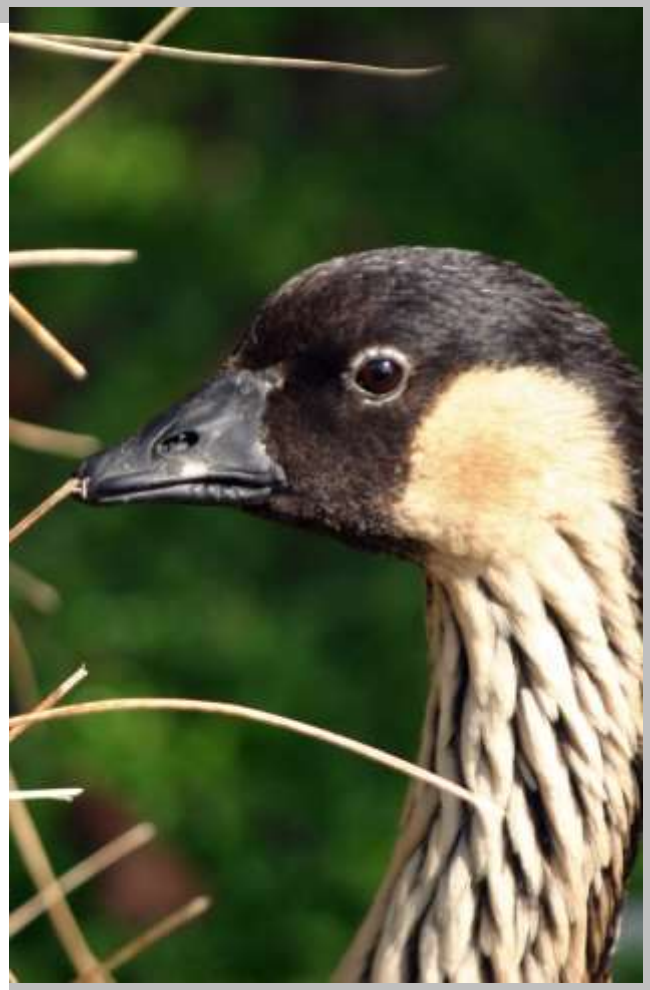
Ken Reininger, NC Zoo





Nene Goose SSP





Swan Goose SSP

Mark O'Berry, Disney's Animal Kingdom

The current population consists of 67 animals (36 males; 31 females; 0 unknown sex) distributed among 9 AZA institutions.

White-Winged Wood Duck

2013/2014 Status Updates

Current Institutional Holdings

- AZA
  - 12 Institutions
  - 20.17 (37 birds)
  - (A couple of mistakes are likely here but not confirmed)

Institution	Male	Female	Unknown	Other	Total
AKRON	5	4	0	0	9
BUSCH TAM	2	3	0	0	5
DENVER	1	1	0	0	2
EL PASO	2	0	0	0	2
JACKSONVL	1	1	0	0	2
METROZOO	1	1	0	0	2
OMAHA	2	0	0	0	2
PROVIDNCE	1	2	0	0	3
SAN ANTON	2	2	0	0	4
SD-WAP	1	2	0	0	3
SIOUX FAL	1	0	0	0	1
ST LOUIS	1	1	0	0	2
TOTALS	20	17	0	0	37

Current Institutional Holdings

- Non-AZA
  - 1 Institution
  - 22.21 (43 birds)

Institution	Male	Female	Unknown	Other	Total
SCOT NECK	22	21	0	0	43
TOTALS	22	21	0	0	43

Species Challenges

- Avian TB
  - Mixture of species susceptibility and husbandry
- Poor 2013 breeding season outside of Sylvan Heights
  - AZA
  - Akron/Hiram

Successes

- Group of 7 year old birds at Hiram College/Akron field station with no evidence of TB
- Institutions are willing to hold birds

2014 Management Plans

- Head start a group of birds at Hiram
  - Eggs from Sylvan Heights
- Discuss breeding plans with current holders now
  - Include plans to pinion v not
- Discuss institutional needs with current and prospective holders now

On-Going Research

- **Protozoans**
  - Hiram College undergraduate students identified during the summer of 2011 fatty acids from parasites found at the soil-water interface of ponds using mass spectrometry. Based on these results, summer 2012 research students grew Protozoa from water samples collected at the Hiram College Field Station, Akron Zoo, and Sylvan Heights Waterfowl Park and quantitated the amount of parasite in each sample. In addition, students constructed a reed bed with different substrates (gravel, etc.,) as a means of eradicating or reducing the amounts of these organisms. Protozoa harbor MA nicely, and could be a mode of transmission. The study is still in progress.
  - Once we assess the results of our reed bed study, we would like to invest in a larger prototype for the Akron Zoo and/or Sylvan Heights. In addition, we would like to investigate possible ways of reducing Protozoa in the soil and water through chemical means.

On-Going Research

- **Immunoglobulin Switching**
  - During the summer of 2011, research students used Matrix-Assisted Laser Desorption Time-of-Flight (MALDI-TOF) mass spectrometry and identified which duck antibody, the truncated IgY (ΔFc) or the untruncated IGY, increases in ducks under two years of age living in a soil-free environment and ducks over the age of two living in a soil-free or soil environment. Based on these findings, they isolated the cytokine IL6 from the plasma of ducks living in soil-water, soil, and TB plasma and quantitated the amount of IL6 in each sample via an ELISA assay. The cytokine IL6 is responsible for the inflammatory process and thought to increase the virulence of mycobacterium avium in patients exposed to the bacterium.
  - We would like to follow up on our IL6 study by looking at causative agents responsible for the lack of inflammation in ducks infected with Avium TB.

On-Going Research

- **Fecal Stress Hormones**
  - Corticosterone is considered a good indicator of stress in many species, including avian. Stress is known to play a large role in the competency of the immune system and potentially the development of TB in the WWWDuck. We are currently in the process of validating an ELISA assay for use with the white-winged wood duck. Once validated, this assay will allow us to compare corticosterone levels across ducks from different institutions and situations, and it will allow us to measure stress levels before and after changes in husbandry.

On-Going Research

- **Genetic Diversity**
  - A student at Hiram College has just begun to analyze samples for a study on the genetic diversity of most of the NA WWWDuck population.
  - While we realize the entire population is extremely inter-related we would like to identify if there are any areas of divergence.
  - We also hope to eventually be able to compare these findings to other captive or wild populations.

Summary

- This is a great species to become involved with!
- Please contact Kim Cook if you have interest:
  - kacook@akronzoo.org
  - 330-375-2550 x 7221

Orinoco Goose (Red Program)

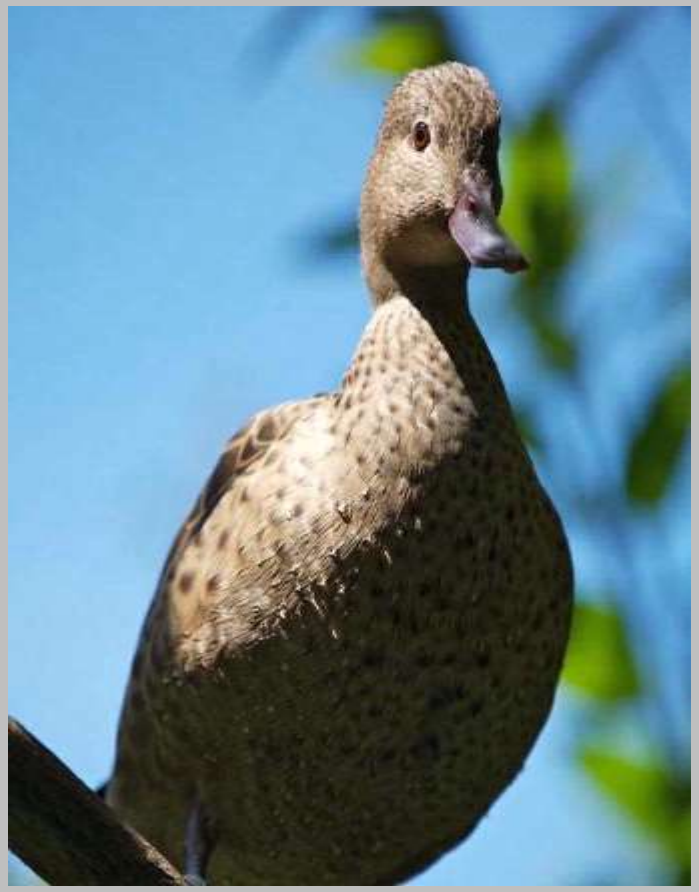
Kayla Hanada, Sacramento Zoo

Males: Approx. 44
Females: Approx. 53
Unknown: Approx. 5
Total: Approx. 102

Madagascar Teal (Red Program)

Craig Mikel, Louisville Zoo

97 Birds at 14 Institutions



Spotted Whistling Duck (Red Program)

Ian Shelley, Salisbury Zoo

AZA Population

- 3.2.1 at Palm Beach
- 9.1.0 at Lowry
- 2.3.0 at Minnesota

- Several birds at Sylvan Heights and Pinola Preserve

Red-Breasted Goose (Red Program) Conservation Update

Red-breasted Geese
Branta ruficollis

Raft Update

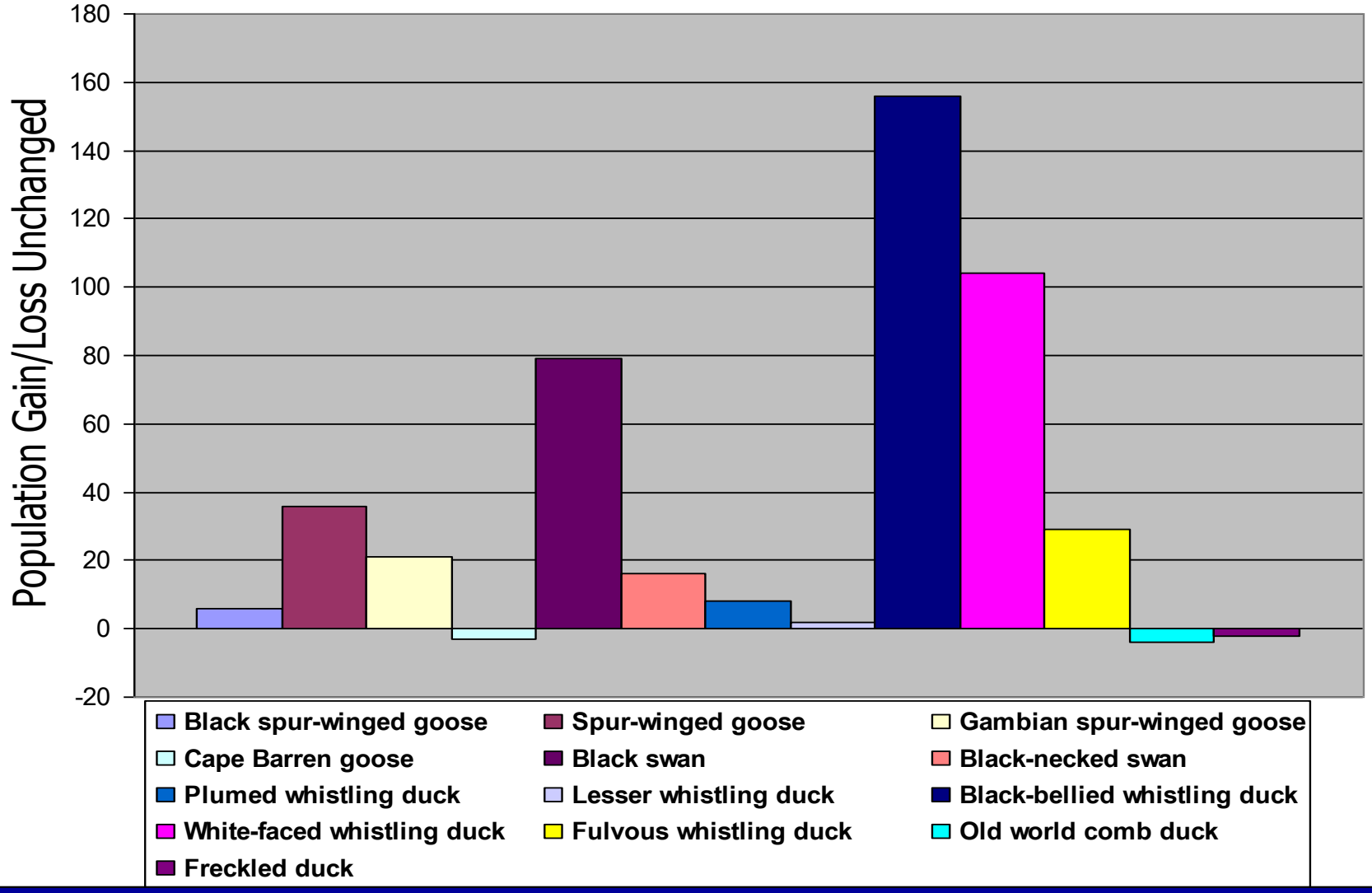
Steve Sarro and Fred Beall

Raft Program

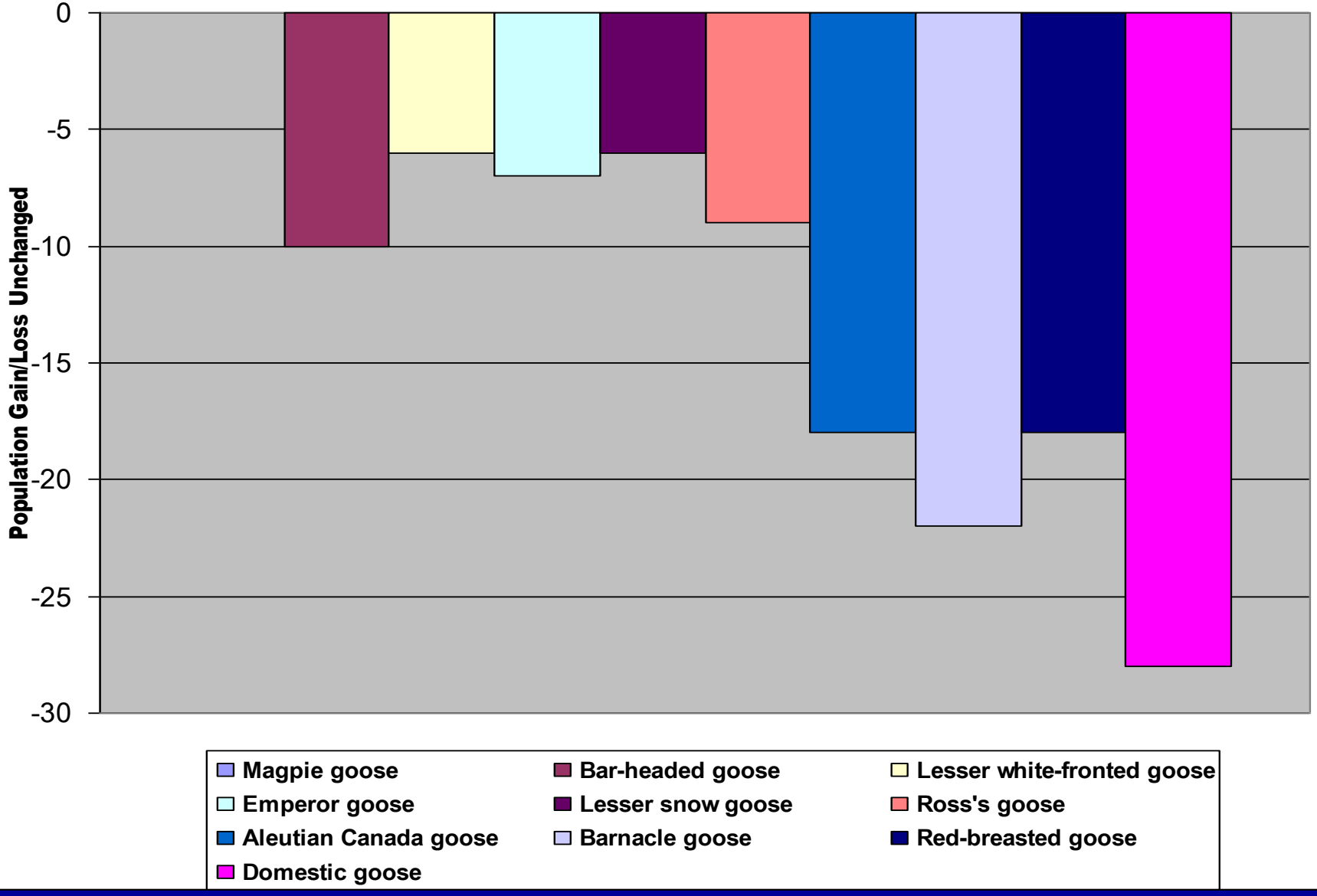
Anseriformes Raft Trends 2006-2013

Raft #	#1	#2	#3	#4	#5	#6	Totals species
Unchanged	0	1 (10.0%)	1 (7.7 %)	0	1 (6.7%)	0	3 (3.7%)
Positive trend	10 **(76.9%)**	0	3 (23.1%)	3 (21.4%)	6 (40.0%)	6 (34.1%)	28 (34.1%)
Negative trend	3 (23.1%)	9 **(90.0%)**	9 **(69.3%)**	11 **(78.6%)**	8 **(53.3%)**	11 **(64.7%)**	51 **(62.2%)**
Total species	**13**	**10**	**13**	**14**	**15**	**17**	**82**

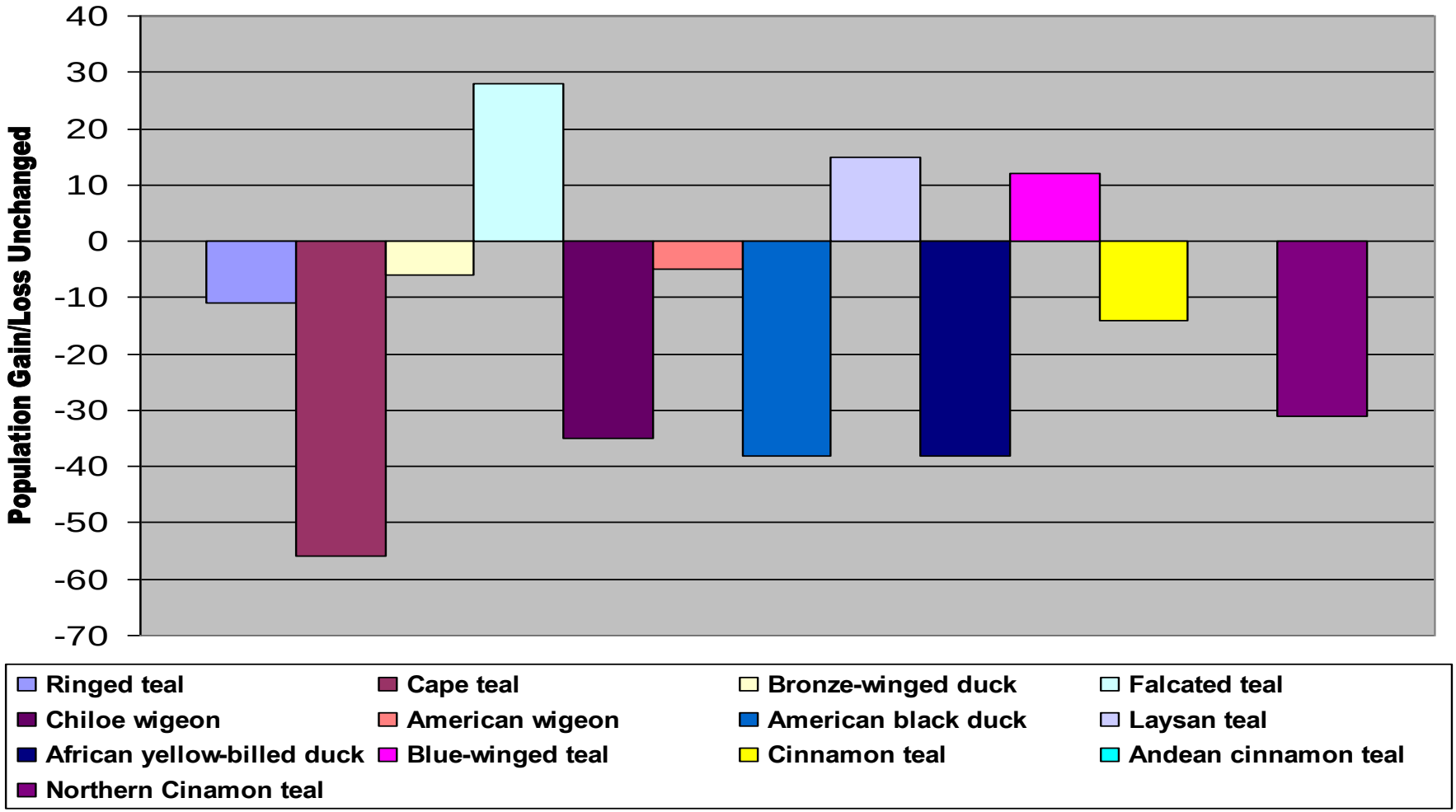
Anseriformes Raft 1 Population Trends 2006 - 2013



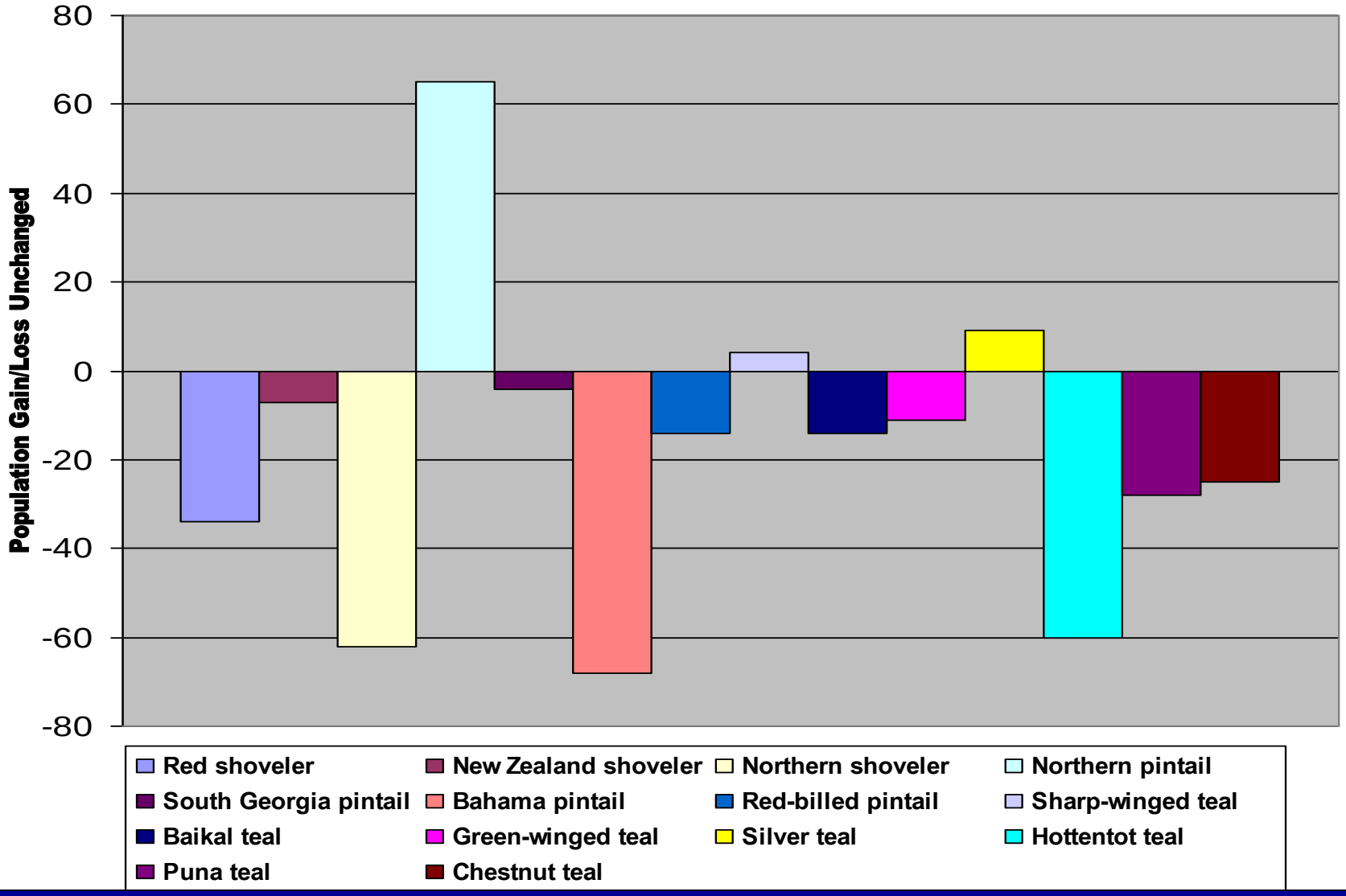
Anseriformes Raft 2 Population Trend 2006 - 2013



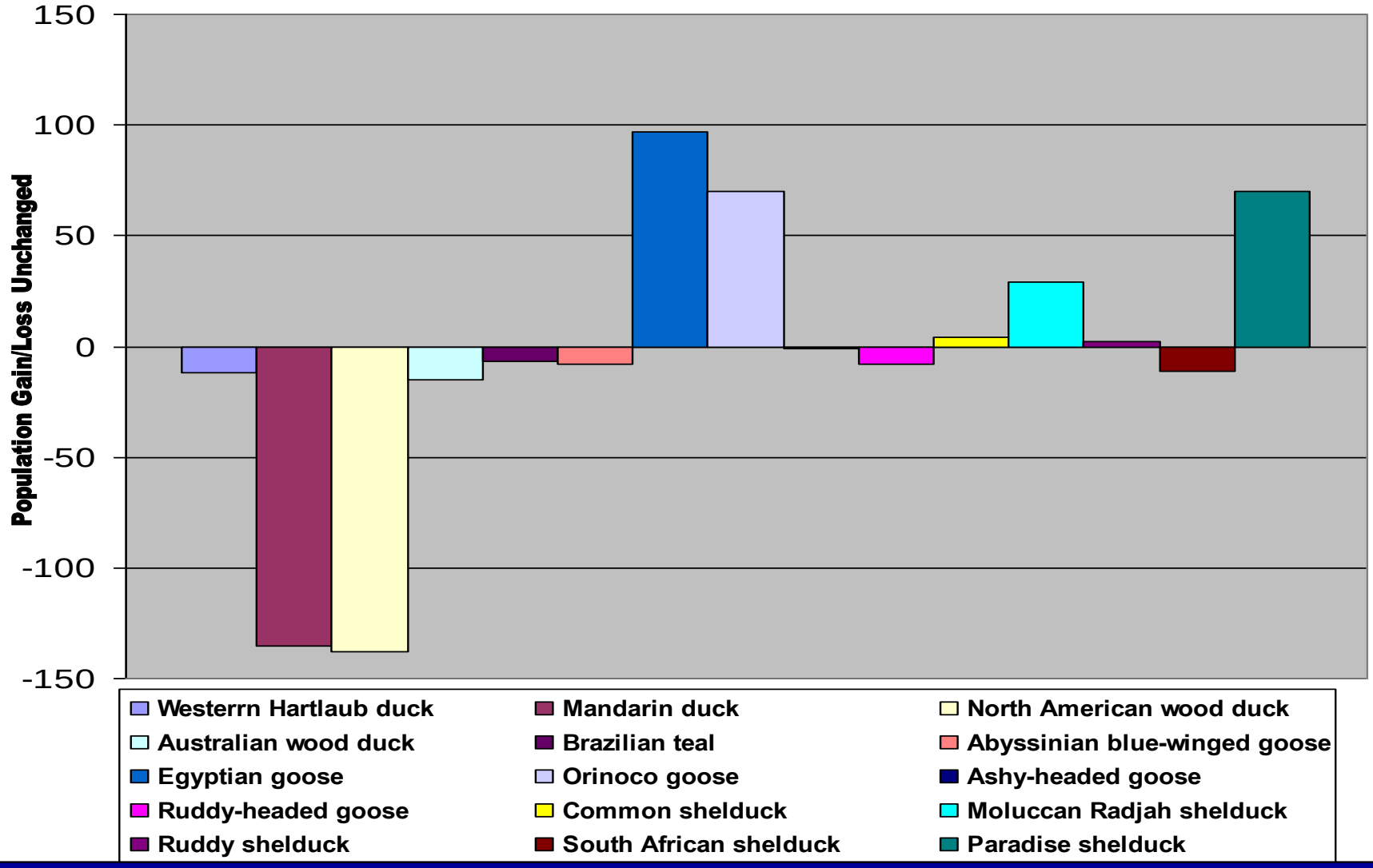
Anseriformes Raft 3 Population Trend 2006 - 2013



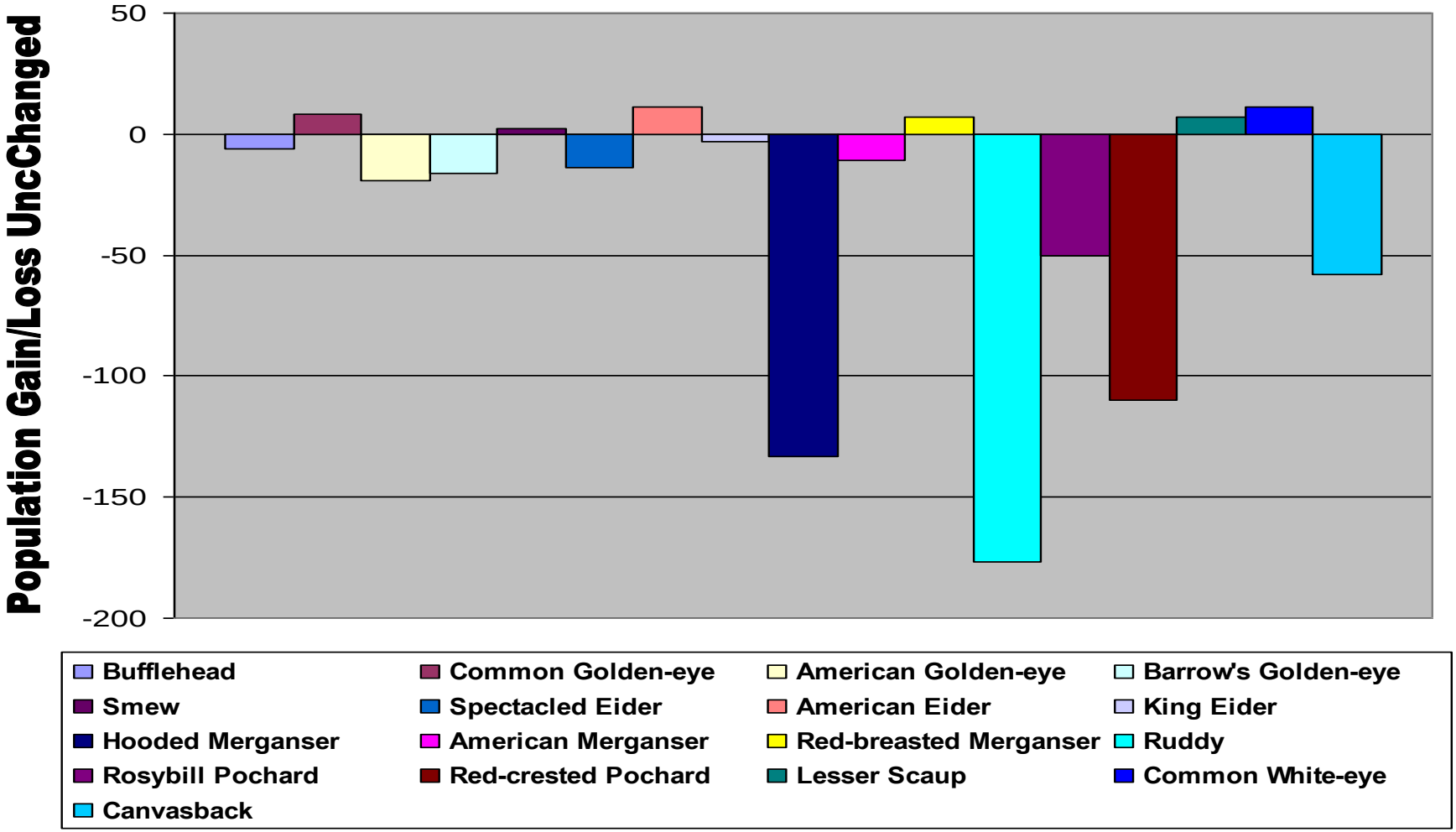
Anseriformes Raft 4 Population Trend 2006 - 2013



Anseriformes Raft 5 Population Trend 2006 - 2013



Anseriformes Raft 6 Population Trend
2006 to 2013



Species Increasing

Falcated duck
30 to 58

Northern pintail
249 to 314

Radjah shelduck
42 to 71

Orinoco goose
11 to 81

Egyptian goose
153 to 250

Species in Decline

Baikal teal
23 to 9

Red shoveler
47 to 13

Hottentot teal
113 to 53

Bronze-winged duck
13 to 7

Mandarin duck
434 to 299

Anseriformes Raft Trends 2006-2013

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Volunteers Needed

- Education Advisor
- ACM
- Newsletter
- Husbandry Workshops

General TAG Discussion