

birds in flight: conservation of Mariana Islands avifauna through
translocation and captive breeding

*Mariana Avifauna Conservation (MAC) Program
and Pacific Bird Conservation (PBC)*

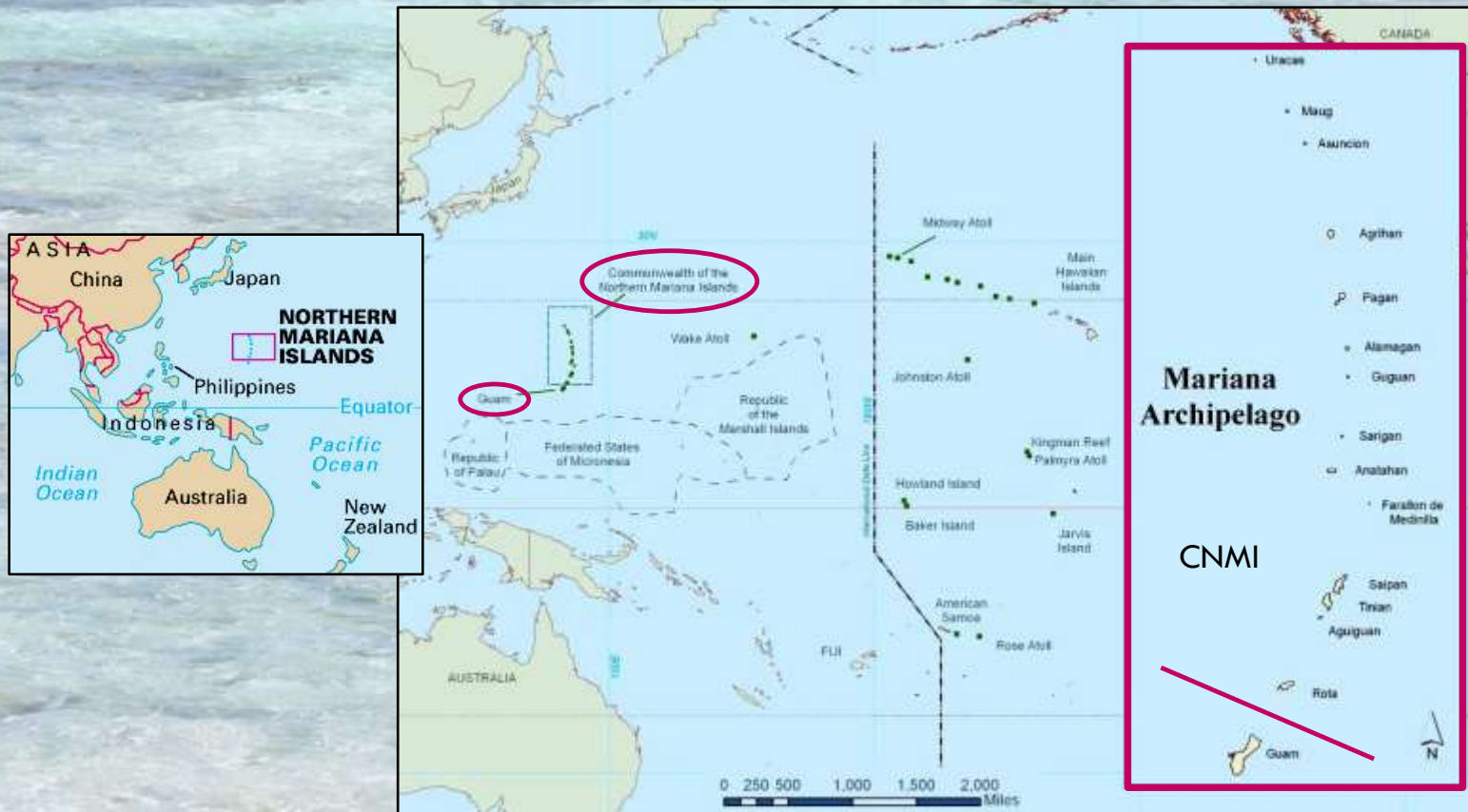


Fields Falcone, Herb Roberts, and Peter Luscomb
Memphis Zoo, AZA Mid-Year Conference, ASAG Meeting
26 March 2014



background

a terrible thing happened on Guam...



background

The Brown Treesnake

- non-native predator
- arrived after WWII in cargo ships, first identified in 50's
- eats eggs, young, and adult birds, also mammals and other reptiles
- *9 of 11 Guam forest birds extirpated by the mid-80's, 5 endemics now extinct*



Results of one night's captures by hand.



fort.usgs.gov

How Do I Know I've Seen a Brown Treesnake?

Length: VARIES- commonly 1-1/2 ft. to 6 ft.

Color: The snake's back is light to dark brown and the belly is light yellow to white in color

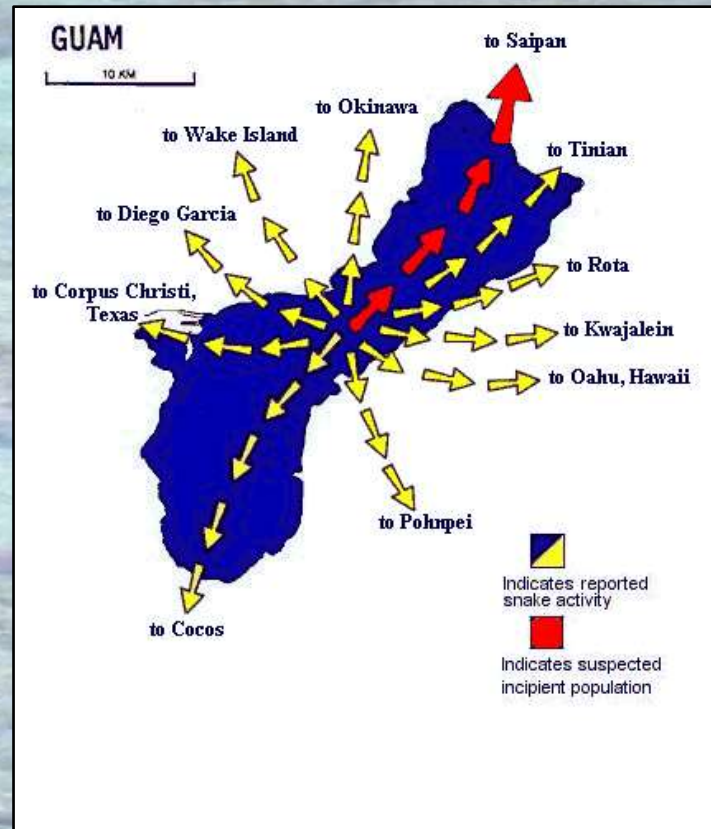
Pattern: Shadowlike markings but no prominent blotches or stripes. Pattern may be very faint.

- Body is slender, with a long tail
- Head is wider than the neck
- Eyes are large with elliptical pupils (like a cat's)

NOTE: Note head and slender body

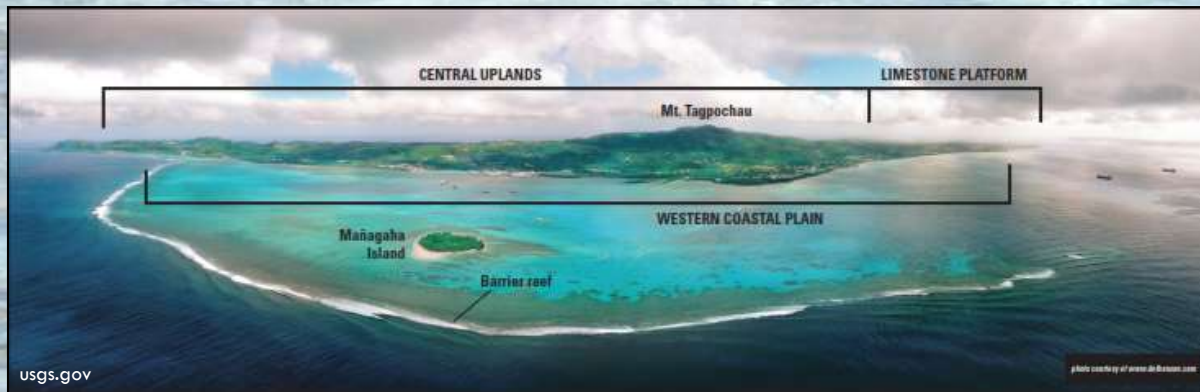
Report Snake Sightings
To your local authorities

background



background

- Saipan
 - 90% of CNMI population: ~48K
 - 90 credible sightings of the brown treesnake



- Mariana forest habitat
 - *Erythrina variegata*, *Cynometra ramiflora*,
Guamia mariannae, *Pisonia grandis*



F Falcone

background

- 9 endemic Mariana bird taxa under threat:
 - Mariana Fruit Dove
 - White-throated Ground Dove
 - Nightingale Reed-warbler
 - Golden White-eye
 - Bridled White-eye
 - Rota White-eye
 - Tinian Monarch
 - Mariana Crow
 - Collared Kingfisher (subspecies)
- other forest species of concern:
 - Rufous Fantail



E. Correll
Golden White-eye



F. Falcone
White-throated Ground Dove

background

- **1993:** Mariana Archipelago Rescue and Survey (MARS) Project, translocation and propagation of:
 - Mariana Crow
 - Rota White-eye
 - Mariana Fruit Dove (Studbook 1993, SSP 1995; managed by Herb Roberts, Curator, Memphis Zoo)
- **1994-2008:** other translocation and propagation efforts for Mariana Crow, Guam Rail
- **2006: Mariana Avifauna Conservation (MAC) Program**, focus on CNMI forest birds

The MAC Program

a collaboration of the CNMI government, US Fish and Wildlife Service (USFWS), Association of Zoos and Aquariums (AZA), and Pacific Bird Conservation (PBC)



F Falcone



“to provide the avifauna of the Mariana archipelago with the best possible chances for long-term survival”

The MAC Program

Main Objectives

- develop techniques to **capture, hold, transport, and breed** all CNMI forest birds for captive assurance populations
- **translocate** all species to snake-free sanctuary islands and establish breeding satellite populations
- develop **funding and public education** programs to support CNMI avian conservation

The MAC Program

- since 2006, 5 more forest bird species have been brought into AZA zoos:
 - White-throated Ground Dove (Studbook and SSP since 2008)
 - Bridled White-eye
 - Golden White-eye
 - Rufous Fantail
 - Tinian Monarch
- husbandry challenges flycatchers

Bridled White-eye



F Falcone

The MAC Program

2013 AZA-MAC Captive Program Summary



Table 3. The current status of captive propagation efforts by CNMI species at AZA affiliated institutions on the U.S. mainland.

Species	Year Program Initiated	Current No. of Zoos	Current Pop.	Target Pop.
Mariana Fruit Dove	1993	18	65	100
White-throated Ground Dove	2006	15	68	75
Rufous Fantail	2009	2	4	50*
Tinian Monarch	2009	1	3	50*
Bridled White-eye	2006	4	30	200
Golden White-eye	2007	6	41	100

*Feasibility yet to be determined

The MAC Program

- since 2008, 4 forest bird species have been translocated to a CNMI sanctuary island:

Mariana Fruit Dove



F Falcone

- Bridled White-eye
- Golden White-eye
- Mariana Fruit Dove
- Rufous Fantail

- translocation = transfer of wild individuals to establish or augment a wild population

The MAC Program

Translocations to Sarigan Island

Species	No.	Year(s)	Source(s)	Colony?
Bridled White-eye	100	2008/2009	Saipan/Tinian	No
Golden White-eye	74	2011/2012	Saipan	No
Mariana Fruit Dove	35	2012/2013	Saipan	Yes
Rufous Fantail	32	2013	Saipan	No

Excerpted from: MAC Working Group. 2013. The MAC Plan, 152pp.



E Gorrell

The MAC Program

2012-2013 Sarigan Survey Results

- **Bridled White-eye:** population estimated at 2000-4000!
- **Golden White-eye:** re-sightings in 2013 including banded and unbanded birds – breeding evidence!
- **Mariana Fruit Dove:** majority translocated in 2013, too early to tell
- **Rufous Fantail:** translocated 2013, but during post-release survey pairs already courting, one pair constructing nest!

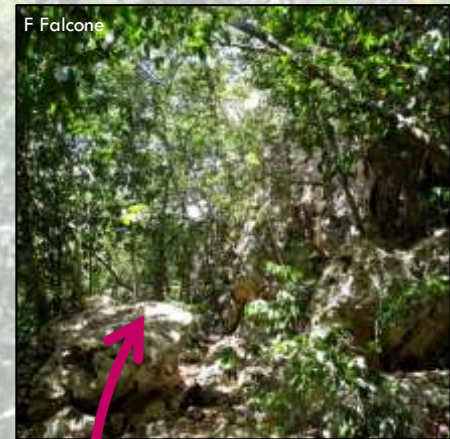


methods

1. capture
2. hold
3. screen
4. mark
5. transport
6. release



Golden White-eye

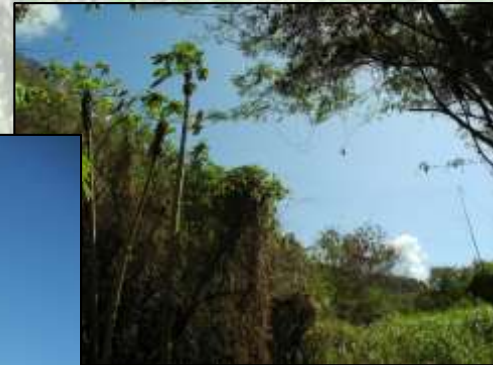


methods

1. capture



F Falcone



E Gorrell



E Gorrell

methods

1. capture



F Falcone



J Mejeur

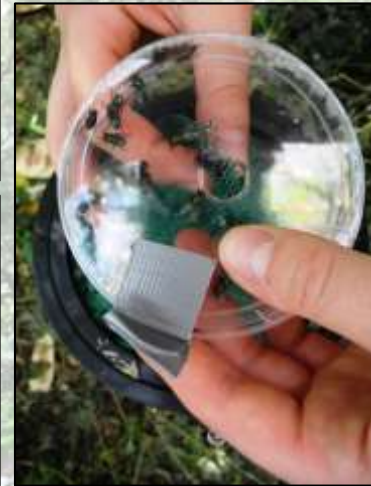


J Pribble

methods

2. hold

3. screen



E Gorrell



F Falcone



methods

4. mark
5. transport
6. release



F Falcone



E Gorrell



E Gorrell



research

- CNMI Division of Fish and Wildlife
 - avian surveys on sanctuary island conducted upon release and again during year as time and funds permit
- Disney's Animal Kingdom (DAK)
 - fecal stress hormone study in Rufous Fantails; MAC participants collected fecal samples daily during holding and in field



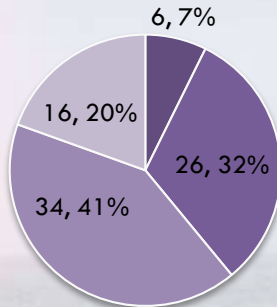
P. Radley

outreach

PBC and DAK, in collaboration with the CNMI government and conservation and education NGOs, interact with islanders about Mariana forest birds

Knowledge: Do you know of any problems Saipan birds might face?

- Cutting forests
- Brown tree snake
- Other
- Don't know



future

Timeline for conservation introductions of all species by the MAC Program to islands in the Mariana archipelago

Timespan (yrs)	Species Translocated	Target Island
2014 and 2015	Tinian Monarch and Bridled White-eye	Guguan
2016	Rufous Fantail	Sarigan
2017 and 2018	Rota White-eye	Agrihan
2019 and 2020	Nightingale Reed-warbler	Agrihan
2021 and 2022	Tinian Monarch and Mariana Fruit Dove	Agrihan
2023 and 2024	Rota White-eye	Asuncion
2025 and 2026	Tinian Monarch and Bridled White-eye	Pagan
2027 and 2028	Nightingale Reed-warbler	Pagan
2029 and 2030	Golden White-eye and Rufous Fantail	Alamagan
2031 and 2032	Mariana Fruit Dove and Rufous Fantail	Guguan

Excerpted from: MAC Working Group. 2013. The MAC Plan, 152pp.

MAC/AZA captive program populations will be augmented/initiated as needed/feasible.

2013 MAC partners and contributors

- Major cooperative partners:
 - Commonwealth of Northern Mariana Islands
 - US Fish and Wildlife Service
 - Pacific Bird Conservation
 - Association of Zoos and Aquariums
- Other contributors:
 - US Forest Service: Asia-Pacific Forest Health Program
 - Karen and Jeffry Lynn, Memphis, TN
 - United Airlines
- Participating/contributing AZA zoos:

– Birmingham Zoo	– Memphis Zoo
– Dickerson Park Zoo	– Phoenix Zoo
– Disney's Wild Animal Kingdom	– St. Louis Zoo
– Honolulu Zoo	– Sedgwick County Zoo
– Houston Zoo	– Toledo Zoo

for more information

- Pacific Bird Conservation (PBC) website:
www.pacificbirdconservation.org
- Mariana Avifauna Conservation (MAC) website:
www.facebook.com/MarianaAvifaunaConservation
- Memphis Zoo MAC field work blog:
www.memphiszoo.org/conservationscience

