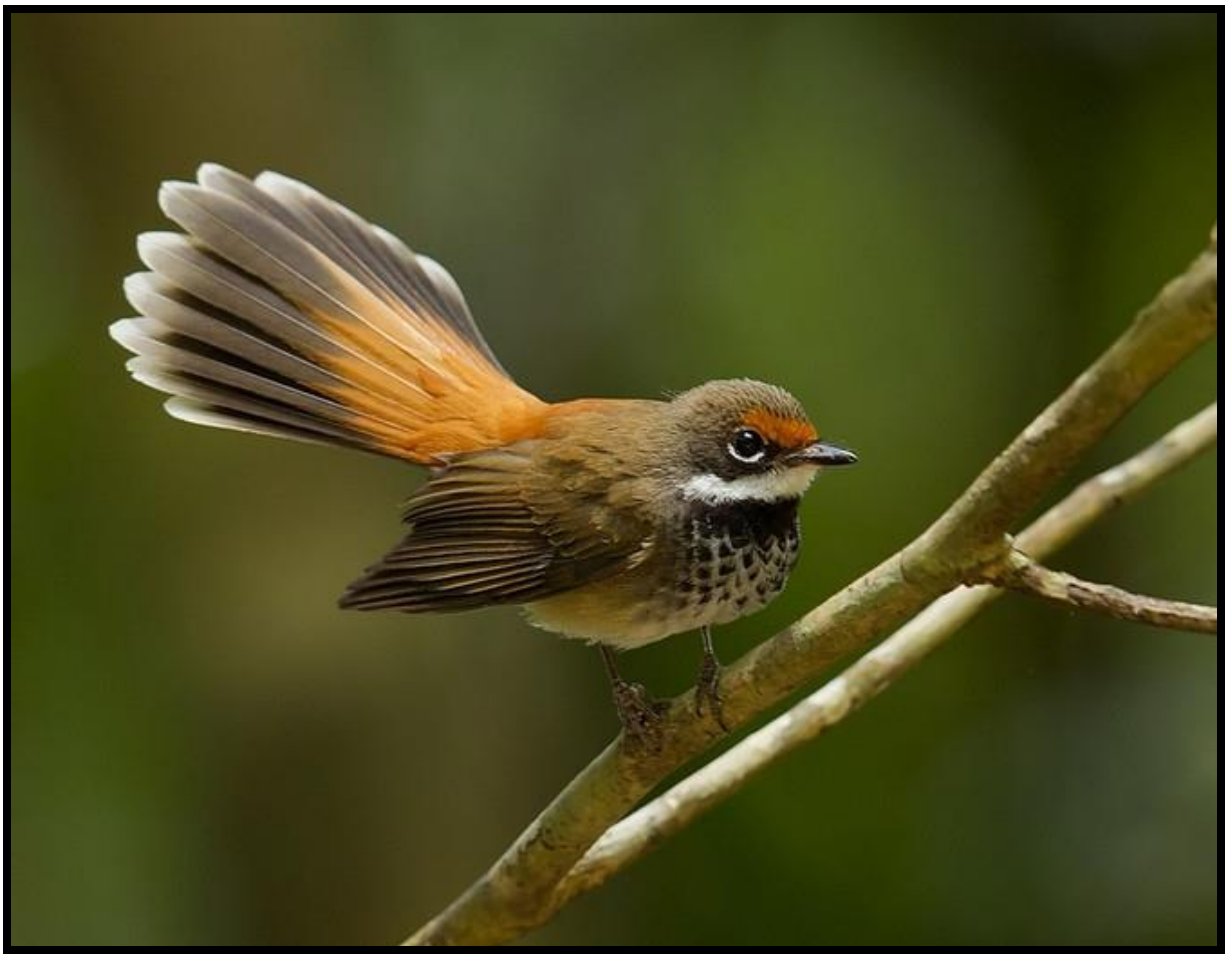
Pacific Bird Conservation

Mariana Avifauna Conservation Program 2017

Progress Report

The Mariana Avifauna Conservation Program 2017

Field Collection of Rufous Fantail (*Rhipidura rufifrons saipanensis*) and Mariana Fruit Dove (*Ptilinopus roseicapilla*) from Saipan for Translocation to Guguan, CNMI



Rufous Fantail **Photo Credit: Geoff Jones 2013**

Trip Report

The Mariana Avifauna Conservation Program 2017 Field Collection of Rufous Fantail (*Rhipidura rufifrons saipanensis*) and Mariana Fruit Dove (*Ptilinopus roseicapilla*) from Saipan for Translocation to Guguan, CNMI

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Objectives of MAC Program 2017

1. Collect fifty-four Rufous Fantails and twenty-four Mariana Fruit Doves on Saipan and prepare them for translocation to Guguan, with a target date for departure to Guguan of 2 May 2017.
2. Assist CNMI Department of Fish and Wildlife with transport and release of birds on to Guguan.
3. Collect fecal samples from collected Rufous Fantails for Disney's Animal Kingdom (DAK) to study stress hormones.
4. Assist Guam Zoo in collecting six Rufous Fantails for public exhibition on Guam.
5. Support two local interns to participate in field work on Saipan.
6. Host an educational booth at the Annual Flame Tree Festival.
7. Arrange education opportunities with CNMI students at various schools and/or general public at civic centers.

Itinerary

16 April:	MAC core team arrives on Saipan
17 April:	Set-up Team Arrives
18 April:	Pick up Field Equipment and Set-up Bird Room
19 April:	Set up trap Site A – primarily for capture of MAFD
20 April:	Trapping started at Site A
21 April:	Set up of trap Site B started – primarily for capture of RUFA
22 April:	Set up of trap Site B complete
	Closing Team Arrives
	MAC booth at Flame Tree Festival
23 April:	Trapping started at Site B
25 April:	Presentation on MAC Program to Rotary Club of Saipan
27 April:	Tapping Completed at Site A
28 April:	Trapping Completed at Site B

	Presentation on MAC Program to CNMI Community College
	Presentation on MAC Program at Saipan Public Library
29 April:	Trap Sites A/B Closed, Field Gear Inventoried and transferred to Storage Container
1 May:	Start-up Team Departs Saipan
	Birds color banded and loaded into crates for translocation
2 May:	Birds translocated to Guguan via boat
	Presentation on MAC Program to Saipan Community School
	Bird Room Closed, Supplies Inventoried and transferred to Storage Container
3 May:	Birds Released on Guguan
4 May:	MAC Team members Return from Guguan
	Presentation on MAC Program to Brilliant Star Montessori School
	Presentation on MAC Program to public at American Memorial Park
6 May:	Close-up Team Departs Saipan
8 May:	Core Team Departs Saipan

Background

Guam's avifauna rapidly disappeared with the introduction of the brown tree snake in the last half of the twentieth century via cargo ships. The snake is believed to be solely responsible for the extirpation or severe reduction of Guam's 25 bird species. Based on roadside surveys conducted on Guam over a 20-year period, most species experienced a 90% decline within nine years.

The islands of Saipan, Tinian, and Rota, part of the Commonwealth of the Northern Mariana Islands (CNMI), are all close neighbors to Guam and are recognized as having the greatest risk from introduction of the brown tree snake. Recovery Plans published by the U. S. Fish and Wildlife Service for the currently listed species, all cite the establishment of the brown tree snake as a major threat. To date there have been over 90 sightings of brown tree snakes on Saipan.

The Mariana Islands all have avifauna with limited distribution, with most forest bird species found only in the CNMI. Several species have extremely limited distribution such as the Tinian monarch (*Monarcha takatsukasae*), found only on Tinian; the Golden white-eye (*Cleptornis marchei*), found only on Saipan and Aguiguan; the Nightingale reed-warbler (*Acrocephalus luscinia*) found only on Saipan and Alamagan; and the Mariana fruit dove (*Ptilinopus roseicapilla*), found only on four CNMI islands, numbering less than 10 on some islands. The CNMI government has requested the assistance of Pacific Bird Conservation and zoological institutions to aid with the following objectives:

- Develop techniques to capture, acclimate to captive conditions, hold, transport, and breed in captivity all of the bird species found in CNMI,
- Establish captive populations of select species that can be used as a source population

for possible reintroduction back to Guam or islands in the CNMI which are able to control the brown tree snake,
- Translocate birds to islands where the brown tree snake is not present,
- Develop public education programs that will assist the conservation of their avifauna,
- Develop fund raising program to assist *in situ* conservation efforts, and
- Provide training to local biologists upon request.

The Mariana Avifauna Conservation (MAC) Program is a partnership between the CNMI Division of Fish and Wildlife (DFW), U.S. Fish and Wildlife Service, Pacific Bird Conservation, and 15 accredited zoos from the Association of Zoos and Aquariums (AZA). The MAC Program began in 2004.

For more information, please visit Pacific Bird Conservation home page at pacificbirdconservation.org, or facebook.com/MarianaAvifaunaConservation.

Overview of Project Set Up
Primary objectives 1 & 2

A total of 20 individuals from 9 institutions participated in this year's translocation. MAC team members were in the Mariana Islands from 16 April until 8 May 2017. Peter Luscomb, Herb Roberts, Hannah Bailey, and Scott Newland were the MAC core team and worked the entire length of the project. The majority of the crew came for two week periods and made up two teams, the Startup crew and Closing crew. Additional crew members arrived as they could to assist with the overall program.
The Startup crew arrived between 17-18 April, and was responsible for setup of the bird room and both field trapping sites. Trapping began at Site A on 20 April and at Site B on 23 April. The Closing crew arrived 22 April and began assisting the Startup crew with collection of birds. Once all birds were collected, both teams prepared the birds for translocation. All birds received a physical exam to ensure that they were healthy and appropriate for translocation. Each bird also received a metal band and a unique combination of color bands on their legs for future identification in the field. Each MAFD received a unique metal band on their right leg and a white plastic band on their left leg. Three MAC team members assisted in the transport and release on Guguan. The staff that remained on Saipan closed up the field camp, bird room and prepared and stored all of the MAC field equipment in the MAC storage container located at the CNMI DFW base yard.

During our time on Saipan we once again stayed at the Summer Holiday Hotel in Garapan. The Summer Holiday provides the MAC team rooms for all team members in addition to a large room to house the birds while in our care. This particular space met all of our needs to provide optimum husbandry and veterinary care.

Peter Luscomb and Herb Roberts were the overall project leaders for MAC 2017, but Hannah Bailey from the Houston Zoo oversaw all activities associated with the management of birds in our care prior to translocation, while Scott Newland from the Sedgwick County Zoo oversaw all trapping activities at both field sites.

Field protocols developed previously were used to guide all activities with the capture, care and transport of the birds.

Methods and Results

Trapping Methods

All trapping activities were done at two sites in the Marpi region of Saipan. Trapping activities were conducted from 20 April – 28 April 2017. All trapping was done on public land. Site A (fig. 1) was a large open field that was vegetated primarily with a species of lantana (*Verbenaceae*) and a species of Solanum (a shrub that produces small green fruits that are consumed by the Fruit Doves).

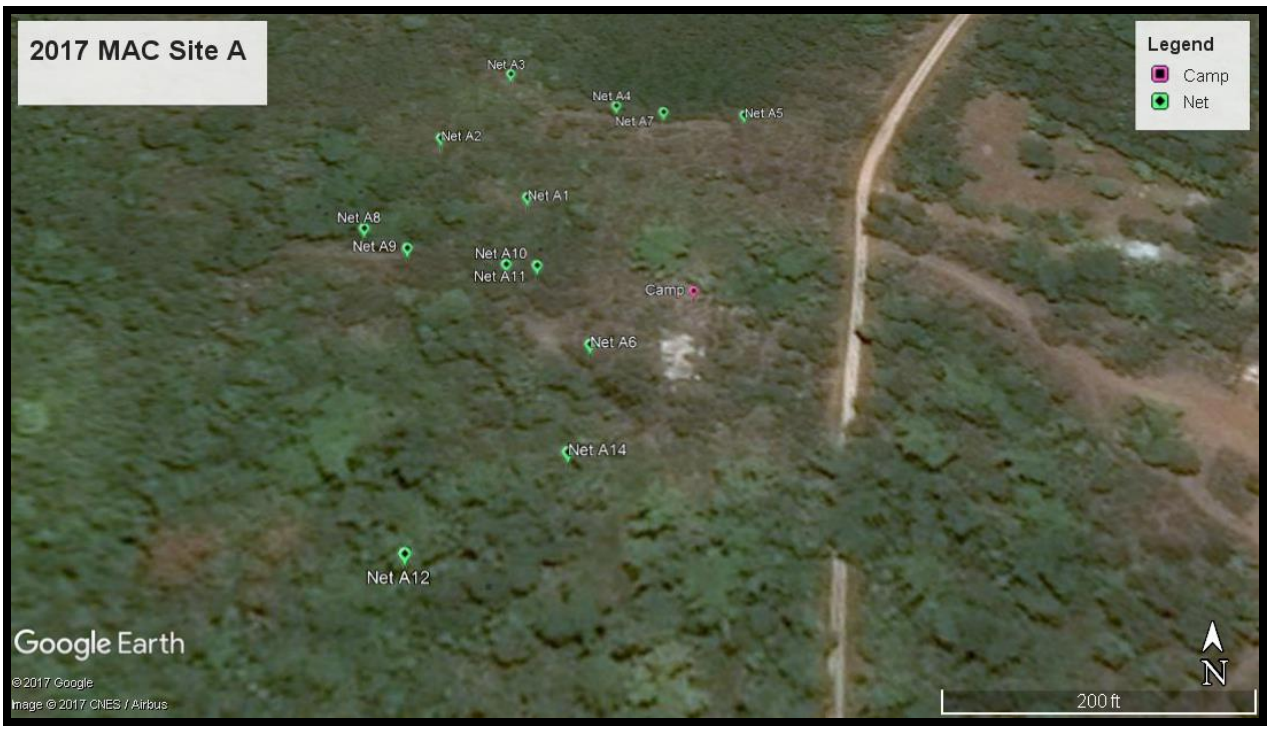

Figure 1: Site A, Marpi region, Saipan

Site A was the primary trapping site for Fruit Doves. A few Rufous Fantails were trapped at Site A to supplement the efforts of trapping this species. Site B (fig. 2) was an area of primarily forest with a few areas of open grass. Site B was the primary site for capturing the Rufous Fantails. We used a total of 32 net locations between the two sites over the nine-day trapping period. We trapped for a total of 1384.25 net hours.

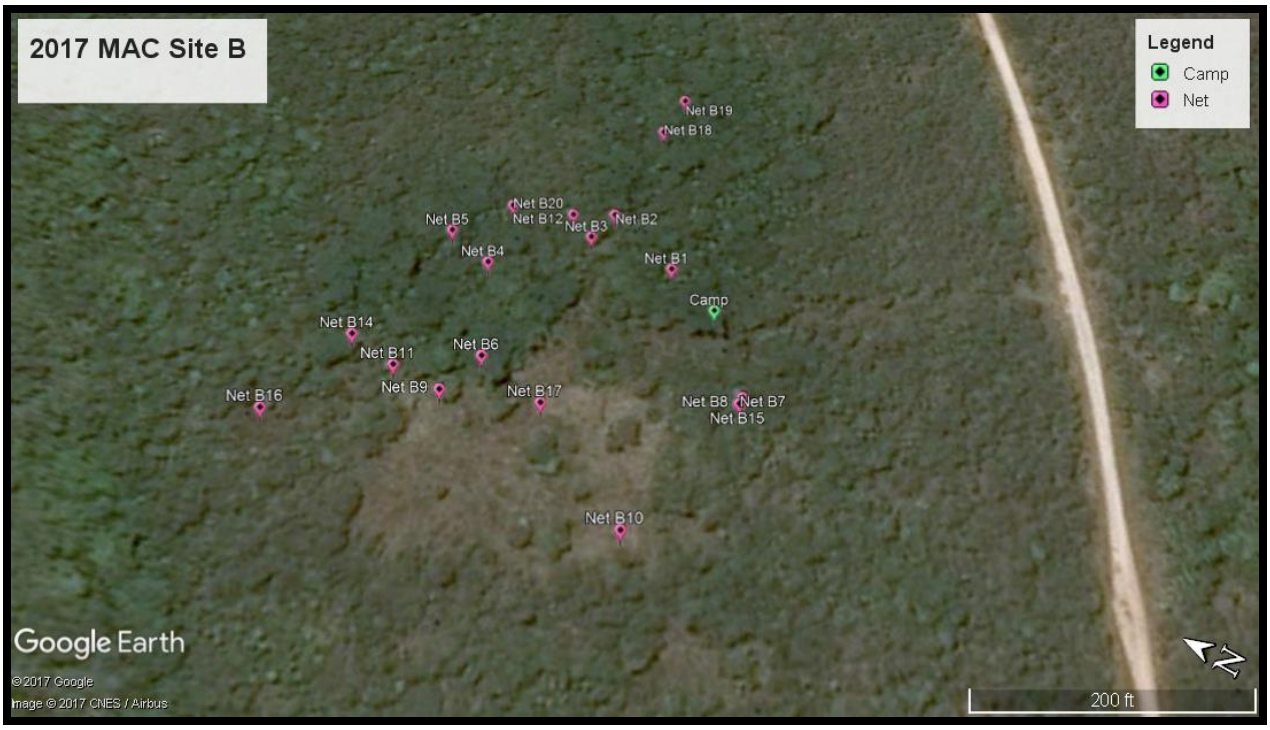

Figure 2: Site B, Marpi region, Saipan

All trapping was performed with the use of mist nets. Fruit Doves were collected using mist nets with a 60mm mesh size. This allowed for minimal incidental capture of smaller, non-target species. The Rufous Fantails were collected with 24mm mesh size. Previous field experience demonstrated that 24mm mesh size is the optimal size for collecting Rufous Fantails, as the birds become less tangled. Bird extractions can occur more quickly and with less stress on the individual birds.

At both trap sites, the field teams monitored the nets on a 30-minute schedule in the morning hours. As air temperatures rose, the time was shortened to 15-mintue intervals. If nets were in direct sunlight, team members were stationed at the nets for immediate extraction of captured birds. All target species were removed from the nets and placed into a cloth bag. Birds were then transferred to our field bird holding areas. Birds were visually inspected, and then placed into a field holding box with food and water. In most cases, birds were transferred back to the hotel bird room within 2 hours of capture.

Our trapping activities focused on collecting Fruit Doves first, as the Fruit Doves need more time to be prepared for translocation and are often more difficult to catch in large numbers. MAC team members scouted the field at Site A and monitored activity of the birds to determine the best locations for the 60mm Double nets. As these net sets are time and labor intensive, it is best practice to get a true sense of bird movements throughout the trap site, and then place the net sets in the obvious flight paths of the Fruit Doves. Of the thirteen net sets erected at Site A, nine were outfitted with the 60mm nets for capturing doves (Table 1). Trapping of Doves at Site A began on April 20th, and concluded on April 27th.

Trapping activities for Rufous Fantails began at Site B on 23 April 2017. As the Fantails can be territorial, team members spent time observing the movement of birds, and needed to close and relocate net sets frequently to meet our collection goals. A total of 19 individual net locations were use at Site B (Table 1) to collect Fantails. As Fruit Doves were collected quickly, team members at Site A also set-up specific net

sets to collect Rufous Fantails. A total of four net lanes were used at Site A for collection of Fantails. Fantails were collected at Site A thru 27 April and at Site B thru 28 April 2017.

Site A MAC 2017

Net		Net hr value	20-Apr		21-Apr		22-Apr		23-Apr		24-Apr		25-Apr		26-Apr		27-Apr		28-Apr		
			Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	
A1	12m x 60mm DBL	2	9.25	18.50	10.50	21.00	5.50	11.00	9.75	19.50	10.50	21.00	10.50	21.00	10.50	21.00	8.00	16.00	No nets in Use		
A2	12m x 60mm DBL	2	9.25	18.50	10.50	21.00	5.50	11.00	9.75	19.50	10.50	21.00	10.50	21.00	10.50	21.00	8.00	16.00			
A3	12m x 60mm DBL	2	9.25	18.50	10.50	21.00	5.50	11.00													
A4	9m x 60mm DBL	1.5	9.25	13.88	10.50	15.75	5.50	8.25													
A5	9m x 60mm DBL	1.5	9.25	13.88	10.50	15.75	5.50	8.25	9.75	14.63	10.50	15.75	10.50	15.75	10.50	15.75	6.50	9.75			
A6	6m x 60mm DBL	1	9.25	9.25	10.50	10.50	5.50	5.50													
A7	9m x 60mm DBL	1.5							9.75	14.63	10.50	15.75	10.50	15.75	10.50	15.75	6.50	9.75			
A8	12m x 60mm DBL	2							9.75	19.50	10.50	21.00	10.50	21.00	10.50	21.00	6.50	13.00			
A9	6m x 60mm DBL	1							9.75	9.75	10.50	10.50	10.50	10.50	10.50	10.50	6.50	6.50			
A10	12m X 24mm SNGL	1													6.00	6.00	10.75	10.75			
A11	12m X 24mm SNGL	1													6.00	6.00	10.75	10.75			
A12	12m X 24mm SNGL	1													2.00	2.00	10.75	10.75			
A14	12m X 24mm SNGL	1													2.00	2.00	10.75	10.75			Total
	Total Net Hours			92.50		105.00		55.00		97.50		105.00		105.00		121.00		114.00		0.00	795.00

Site B MAC 2017

Net		Net hr value	20-Apr		21-Apr		22-Apr		23-Apr		24-Apr		25-Apr		26-Apr		27-Apr		28-Apr		
			Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	Hours Open	Net Hours	
B1	12m X 24mm SNGL	1							7.00	7.00											
B2	12m X 24mm SNGL	1							10.50	10.50	12.50	12.50	11.75	11.75	8.00	8.00					
B3	12m X 24mm SNGL	1							10.50	10.50	12.50	12.50	11.75	11.75	11.75	11.75	5.50	5.50			
B4	12m X 24mm SNGL	1							10.50	10.50	12.50	12.50	4.75	4.75							
B5	12m X 24mm SNGL	1							10.50	10.50	12.50	12.50	11.75	11.75	11.75	11.75	5.75	5.75			
B6	12m X 24mm SNGL	1							10.50	10.50	12.50	12.50	11.75	11.75	11.75	11.75	11.25	11.25	3.75	3.75	
B7	12m X 24mm SNGL	1							3.50	3.50	12.50	12.50	11.75	11.75	11.75	11.75	11.25	11.25	3.75	3.75	
B8	12m X 24mm SNGL	1									8.75	8.75	11.75	11.75	11.75	11.75	11.25	11.25	3.75	3.75	
B9	12m X 24mm SNGL	1									8.25	8.25	11.75	11.75	11.75	11.75	9.75	9.75	3.75	3.75	
B10	12m X 24mm SNGL	1									6.25	6.25	11.75	11.75	9.50	9.50					
B11	12m X 24mm SNGL	1									5.00	5.00	11.75	11.75	11.75	11.75	9.75	9.75	3.75	3.75	
B12	12m X 24mm SNGL	1											6.75	6.75	11.75	11.75	6.50	6.50	3.75	3.75	
B14	12m X 24mm SNGL	1											4.00	4.00	11.75	11.75	11.25	11.25	3.75	3.75	
B15	12m X 24mm SNGL	1													3.50	3.50	11.25	11.25	3.75	3.75	
B16	12m X 24mm SNGL	1													1.75	1.75	11.25	11.25	3.75	3.75	
B17	12m X 24mm SNGL	1															9.75	9.75	3.75	3.75	
B18	12m X 24mm SNGL	1															3.75	3.75	3.75	3.75	
B19	12m X 24mm SNGL	1															3.75	3.75	3.75	3.75	
B20	12m X 24mm SNGL	1															2.50	2.50	3.75	3.75	Total
	Total Net hours									63.00		103.25		121.25		128.50		124.50		48.75	589.25
																				Total A&B	1384.25

Table 1: Net hours

Trapping Results

Site A

At site A, a total of 146 birds from 10 species were collected. The following birds were collected: 22 Bridled White-eye (BRWE), 2 Golden White-eye (GOWE), 17 Rufous Fantails (RUFA), 2 Micronesian Honeyeater (MIHO), 14 Micronesian Starling (MIST), 12 Collared Kingfisher (COKI), 33 Mariana Fruit Dove (MAFD), 4 Yellow Bittern (YEBI), 36 Island Collared Dove (ISCD), 5 White-throated Ground Dove (WTGD) (Table 2). The 33 MAFD were collected using 9 net sets across 736 net hours. This resulted in a rate of 22.3 net hours to collect each MAFD. This rate reflects that only 9 of the 13 Site A net locations were used, as the other 4 net sets were using mesh sizes and set-ups not intended to catch MAFD. In terms of collecting RUFA, the rate for Site A was significantly lower than Site B. Using all 13 nets over a total of 795 net hours, 17 RUFA were collected. This resulted in a collection rate of one RUFA every 46.8 net hours. This low collection rate is primarily due to two factors: the majority of nets used were 60mm mesh size which RUFA are not entangled in easily, and we only targeted RUFA with appropriate net sizes for 59 net hours.

	Species											
Net Number	BRWE	GOWE	RUFA	MIHO	MIST	COKI	MAFD	YEBI	ISCD	WTGD	Total	
A1	1	0	1	0	3	1	5	0	2	0	13	
A2	1	0	2	0	1	2	11	0	14	1	32	
A3	2	0	2	1	1	2	3	2	4	0	17	
A4	0	0	1	0	0	2	2	0	2	0	7	
A5	0	0	0	1	4	4	2	0	8	2	21	
A6	0	0	0	0	1	0	2	0	0	0	3	
A7	0	0	2	0	1	0	7	1	5	1	17	
A8	0	1	0	0	0	1	0	0	1	1	4	
A9	0	0	0	0	1	0	1	0	0	0	2	
A10	11	0	4	0	0	0	0	1	0	0	16	
A11	0	0	4	0	1	0	0	0	0	0	5	
A12	0	1	0	0	0	0	0	0	0	0	1	
A14	7	0	1	0	0	0	0	0	0	0	8	
Total Per Species	22	2	17	2	13	12	33	4	36	5	146	Total Birds Collected

Table 2: Species Collection Summary Site A

Site B

A total of 186 birds were collected in 19 nets at Site B over the course of 589.25 net hours. (Table 3) The following were collected at Site B: 82 Bridled White-eye (BRWE), 37 Golden White-eye (GOWE), 50 Rufous Fantails (RUFA), 2 Micronesian Honeyeater (MIHO), 5 Micronesian Starling (MIST), 2 Collared Kingfisher (COKI), 5 Orange-cheeked Waxbill (OCWB), 2 Island Collared Dove (ISCD), and 1 White-throated Ground Dove (WTGD). A total of 50 RUFA were collected over this period, producing a collection rate of one RUFA for every 11.8 net hours. This rate was significantly greater than the collection rate at Site A. This is a direct result of all nets utilized were of appropriate size to collect RUFA, and the habitat of Site B is more ideal for the presence of RUFA.

	Species											
Net Number	BRWE	GOWE	RUFA	MIHO	MIST	COKI	MAFD	OCWB	ISCD	WTGD	Total	
B1	0	1	0	0	0	0	0	0	0	0	1	
B2	3	3	3	0	0	0	0	0	0	0	9	
B3	14	3	4	0	3	1	0	0	0	0	25	
B4	4	8	0	0	0	0	0	0	0	0	12	
B5	14	2	4	0	1	0	0	0	0	0	21	
B6	9	1	8	1	0	0	0	0	0	0	19	
B7	1	0	5	0	0	0	0	1	0	0	7	
B8	7	1	2	0	0	0	0	4	0	0	14	
B9	11	3	3	0	1	1	0	0	0	1	20	
B10	7	0	2	0	0	0	0	0	1	0	10	
B11	0	0	4	0	0	0	0	0	0	0	4	
B12	1	2	3	0	0	0	0	0	0	0	6	
B14	1	4	3	0	0	0	0	0	1	0	9	
B15	2	2	1	0	0	0	0	0	0	0	5	
B16	2	2	1	0	0	0	0	0	0	0	5	
B17	1	0	0	0	0	0	0	0	0	0	1	
B18	1	4	2	0	0	0	0	0	0	0	7	
B19	3	1	2	0	0	0	0	0	0	0	6	
B20	1	0	3	1	0	0	0	0	0	0	5	
Total Per Species	82	37	50	2	5	2	0	5	2	1	186	Total Birds Collected

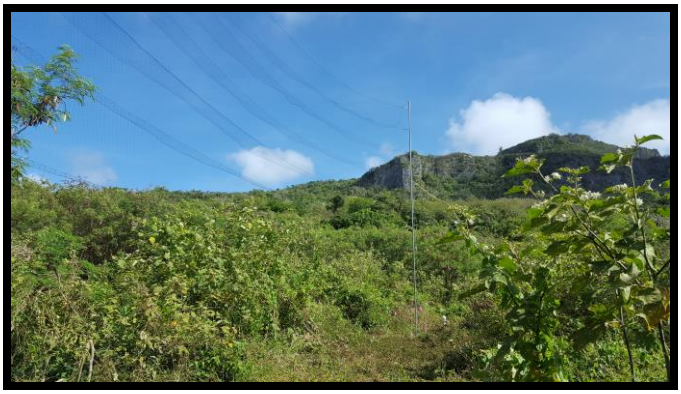

Photo 1: Dove net at Site A

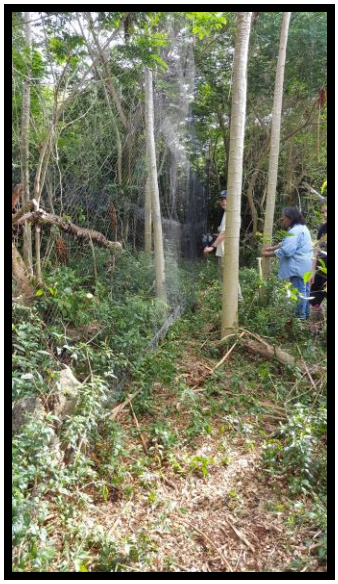

Photo 2: Net lane at Site B

Husbandry

A total of 32 Mariana Fruit Doves and 55 Rufous Fantails were transported to the bird room at the Summer Holiday hotel for acclimatization and eventual translocation. Six additional Rufous Fantails were collected and housed at the bird room for transfer to the Guam Zoo. Once birds were collected in the field, they were transported back to the climate controlled bird holding room. The Rufous Fantails were housed singly in individual holding boxes. For the most part, the Mariana Fruit Doves were also housed singly in holding boxes. However, as a few juvenile MAFD were collected, they were housed in pairs with other juveniles, as they tend to experience less stress with companionship. Basic biological data were taken on each bird: capture weight, body condition index, fat stores, wing cord, tail length, and tarsus length. Weights were taken each day on all birds in order to monitor health status. Fecal samples were taken on all birds to determine potential parasite loads. All birds were banded with a numbered aluminum leg band and a unique combination of color bands to allow for identification in the field during future CNMI DFW surveys. All MAFD were banded with a white plastic band on their left leg to indicated capture-year cohort during CNMI DFW surveys.

RUFA

Rufous Fantails have been challenging to maintain in captivity, but building on experience gained during the 2013-2014 field seasons, the 2017 translocation of RUFA was marked success. Of the 61 Rufous Fantails collected, we did not experience a single mortality event. A single RUFA was released back into the wild, as the individual was a young juvenile that was deemed not ideal for translocation. The 6 RUFA designated to transfer to the Guam Zoo were selected based on overall weight increases, as this was indicative of the bird's transition to a captive diet and reduced stress. Both of these factors would suggest that these individuals would continue to thrive in their new home. The RUFA were fed a supply of live meal worms and flies, with the goal of slowly transitioning the RUFA to eat the meal worms. The RUFA were weighed daily at the AM feeding. The morning weight is the lowest weight the bird will have each day, and this weight is compared to the previous AM weight to monitor status. On average, the RUFA lost 4.3% of their body weight during the first 24 hours in our care. The RUFA lost an average of

0.4% of their total collection weight during their entire stay in the holding room. This demonstrates that the RUFA were able to overcome the initial adjustment to captivity, and were utilizing the diet provided to nearly return to their respective body weights on the day of collection.

MAFD

Mariana Fruit doves do not easily transition to a captive diet, and as such, in order to ensure that the birds were healthy prior to translocation we provided the birds a hand-fed formula via tube-feeding. The MAFD were weighed daily at the AM feeding. Each dove was started on 6mL of formula per feeding, and gradually increased to a maximum of 12mL per feeding based on weight gains and feeding behaviors. The MAFD were fed three times a day, aiming for a goal of only two feedings per day as amounts increased.

Based on data collected on the feeding of Many-Colored Fruit Doves (MCFD) in American Samoa in 2016, changes were made to the ingredients of the MAC historic dove feeding formula. These changes were made based on increases in weight gain observed in the MCFD collection. The ability to increase weight while in our care would be ideal to prepare the MAFD for translocation, and as such the decision was made to make changes to the MAC formula.

In previous MAFD collection, Kaytee Exact Hand Feeding Formula with the additional of ~1 tablespoon of mashed papaya (to support overall digestion) per 100mL of prepared formula was used as the only food source for the doves. While the MAFD subsisted with this formula, maintaining weight on the doves was difficult; 3- 12mL feeding per day were required to maintain weight on a majority of the birds. For MCFD collection in American Samoa, birds were fed Kaytee Exact Hand Feeding Formula with the addition of ~1 teaspoon of peanut butter and ~1 tablespoon mashed papaya per 100mL of mixed formula. With the addition of the high-fat peanut butter, the MCFD maintained or gained weight. After the birds returned to the mainland US, Kaytee Exact High-Fat Hand Feeding Formula was used as the MCFD were transitioned to a captive diet. During this time, the MCFD still gained or maintained weight.

From 20 - 25 April, the MAFD feeding formula consisted of Kaytee Exact High-Fat Hand Feeding Formula, ~1 teaspoon peanut butter, ~1 tablespoon mashed papaya per 100 mL of prepared formula. A few days after collection some of the MAFD began to demonstrate depressed behavior, regurgitation post feeding and production of oily fecals. Four MAFD died from digestive complications with the new formula. An additional four birds also began to show signs of digestive issues, and they were stabilized and released back at the collection site.

Staring on 26 April, the decision was made to return to remove the peanut butter and return to the original MAC dove formula; with the exception that Kaytee Exact High-Fat Hand Feeding Formula (with the continued addition of mashed papaya) was used instead of the regular formula. After the removal of the peanut butter, all remaining MAFD responded well to the feeding formula and began to stabilize in weight. The remaining MAFD experienced only and average loss of 3.7% of body weight under our care. A total of 24 MAFD were approved for translocation by MAC team administrators.

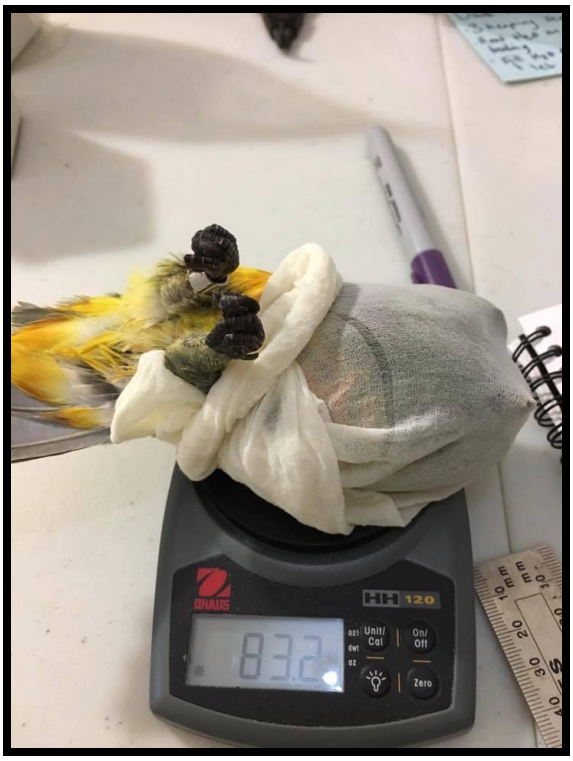

Photo 3: MAFD weighed on scale

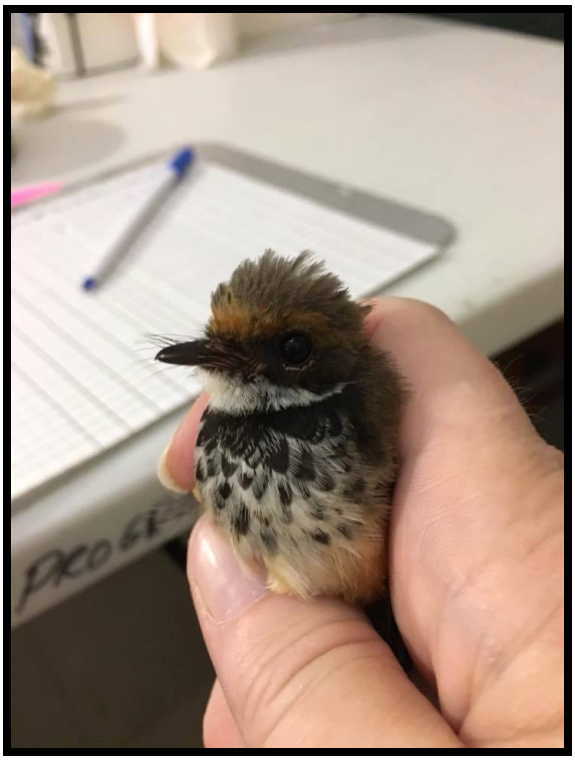

Photo 4: Visual exam on RUFA

Photo 5: Panoramic of Bird Room at Summer Holiday

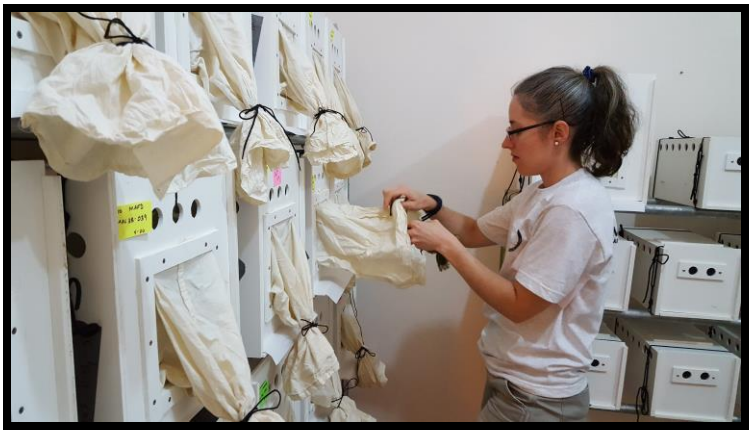

Photo 6: Returning MAFD to holding box after feeding

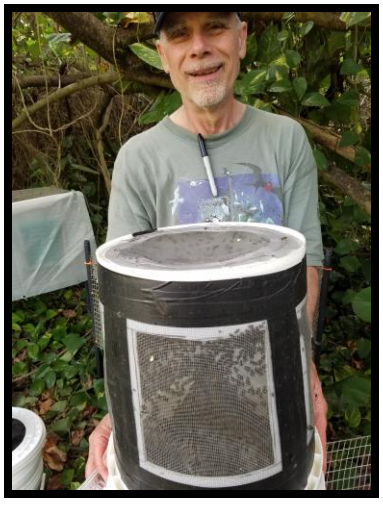

Photo 7: Fly bucket for RUFA

Translocation

The CNMI Division of Fish and Wildlife was able to contract the Super Emerald, a 64ft Coast Guard approved vessel, to transport birds and staff out the Island of Guguan for this year's translocation effort. Once again, DFW and PBC staff were able to inspect the Super Emerald prior to translocation to identify how best to manage the birds during the trip to Guguan. The owners of the Super Emerald had maintained the palletized storage area constructed for the 2016 translocation, so only a few preparations were needed to make the area ready for our bird crates. On 2 May 2017, 15 crates of birds (24 MAFD and 54 RUFA) were transported to Guguan along with members of DFW staff and 3 MAC team members (Deidre Fontenot, DVM, Leanne Blinco and Ron Fricke). The overnight trip to Guguan took approximately 14 hours. Upon arrival at Guguan, the birds were offloaded from the Super Emerald, and onto a skiff to be transported to shore. Leanne Blinco oversaw the loading of the bird crates onto the skiff, and Dr. Deidre Fontenot organized the crates on shore. The birds were secured onto cargo backpacks, and carried by DFW porters approximately 100m up the slope to the release point. Once all birds were positioned at the release point, Dr. Deidre Fontenot visually inspected all the birds, to ensure they were suitable for release. A total of 24 MAFD and 54 RUFA were successfully released onto Guguan.

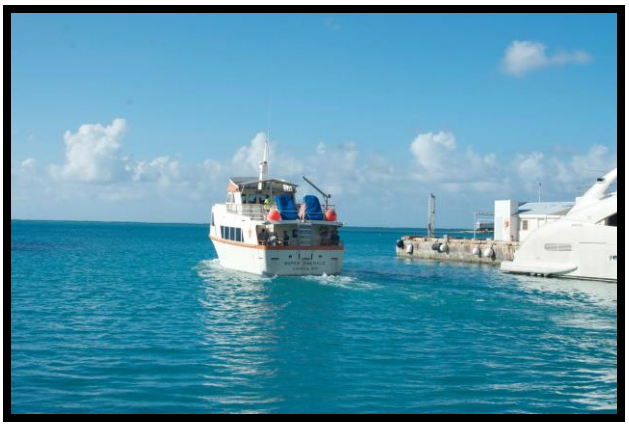

Photo 8: Super Emerald departing for Guguan

Photo 9: Guguan

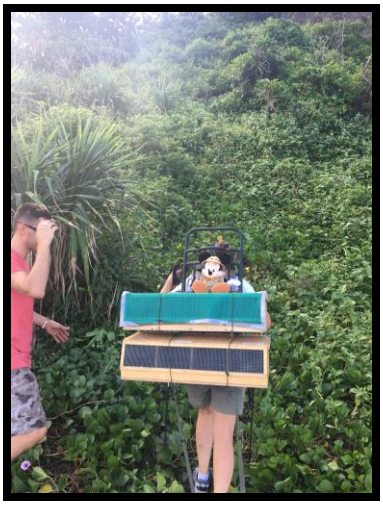

Photo 10: Transport of Birds

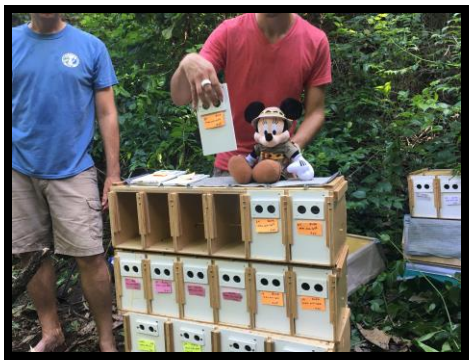

Photo 11: Release of birds on Guguan

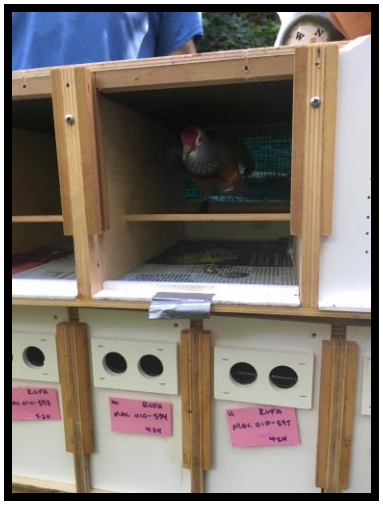

Photo 12: Reluctant MAFD

Supplemental Objectives

3. Collect fecal samples from collected Rufous Fantails for Disney's Animal Kingdom (DAK) to study stress hormones.
    a. DAK has been conducting a multi-year study of the stress hormone cortisol in the CNMI birds since 2011. These data will be used to better understand the effect our management systems have on avian stress.

4. Assist Guam Zoo in collecting six Rufous Fantails for public exhibition on Guam.

    a. Six Rufous Fantails were collected and held in quarantine for seven days prior to shipment to Guam. All birds arrived in good condition and were set-up in a temporary area to continue with transition to captivity at the Guam Zoo. Sexing results from feathers pulled at capture shows all 6 birds moved to the Guam Zoo are males.

5. Support two local interns to participate in field work on Saipan.

    a. Minshal Doronio, a student at the Northern Mariana College on Saipan, and Kloe Borga, a senior in High School, both participated in this year's internship. They joined us over two weekends to participate in all aspects of our project. The students learned how to set-up mist nets, remove birds from the nets, and how to properly care for them in the bird room once collected.

6. Host an educational booth at the Annual Flame Tree Festival.

    a. On 23 April Peter Luscomb and Ron Fricke hosted a MAC booth at the Flame Tree Festival held at Garapan Fishing Base. Peter and Ron spoke with festival goers about our continued work in CNMI and about the importance of conserving the natural history of the area. PBC with the assistance from Disney Animal Kingdom were able to develop bird cards for all terrestrial species of birds in the Islands. We were fortunate to have all of the avian art work donated to the project by Dr. Doug Pratt a renowned ornithologist and artist. He was a co-author of Birds of Hawaii and the Tropical Pacific. We had over 250 participants and all individuals received a bird card with a picture of a bird with conservation information on the back.

7. Arrange education opportunities with CNMI students at various schools and/or general public at civic centers.

    a. On 25 April 2017, Peter Luscomb spoke with the Saipan Rotary Club about the MAC Program to 50+ participants.

    b. On 28 April 2017, MAC team members gave a presentation to 25 students from the Northern Marianas College (NMI) at the NMI campus.

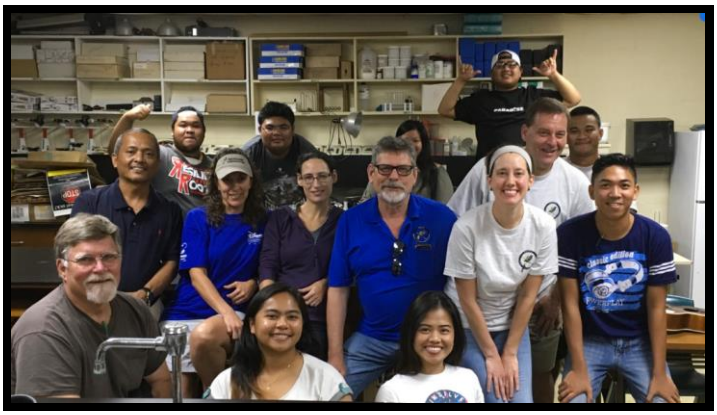

Photo 12: PBC team at Northern Marianas College

c. On 29 April 2017, MAC team members presented a program to local children at the Joeten-Kiyu Public library. The program included a short movie on "CoCo the Coconut Crab" by Shelly Kremer. About 75 families attended the presentation. http://www.mvariety.com/cnmi/cnmi-news/local/95164-children-at-public-library-learn-about-nmi-s-unique-bird-species

d. On 2 May 2017, MAC team members presented a program to students at the Saipan Community School.

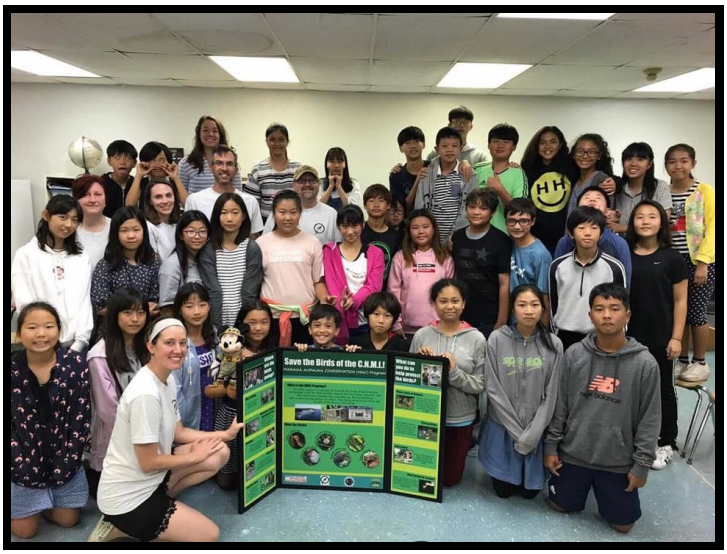

Photo 13: PBC team at Saipan Community School

e. On 4 May 2017, MAC team members presented a program to students at the Brilliant Star Montessori School.

f. On 4 May 2017, Ellen Gorrell presented a public program on the activities of MAC at the American Memorial Park Auditorium.

MAC 2017 Project Support and Funding

Major Contributor: CNMI Department of Land and Natural Resources

Disney Conservation Fund: Grant Award for MAC 2017 totaling $25,000

St. Louis Zoo: $4915.00

Arizona Center for Nature Conservation at Phoenix Zoo: $1000

Doug Pratt: Donation of all artwork for staff shirts and educational trading cards

Contributing/Participating Zoos:

Aquarium of the Pacific
Disney's Animal Kingdom
Fort Wayne Children's Zoo
Houston Zoo, Inc.
North Carolina Zoo
Saint Louis Zoo
Sedgwick County Zoo
Toledo Zoo

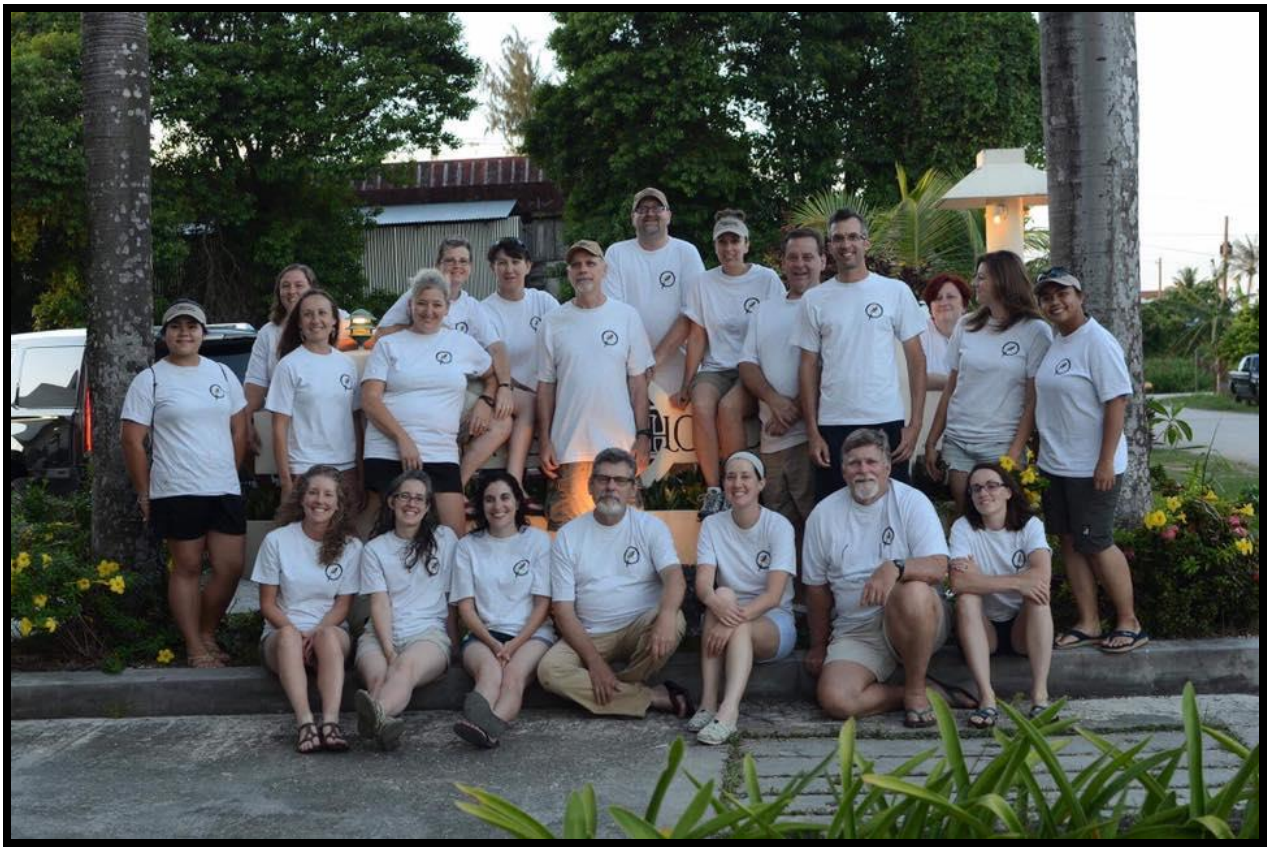

Photo 14: 2017 MAC Program Team