Pacific Bird Conservation
Mariana Avifauna Conservation Program 2015
Progress Report

The Mariana Avifauna Conservation Program 2015

Field collection of Tinian monarch (*Monarcha takatsukasae*) and Bridled White-eye (*Zosterops conspicillus*) from Tinian for translocation to Guguan CNMI

Island of Guguan

Trip Report

The Mariana Avifauna Conservation Program 2015 Field collection of Tinian monarch (*Monarcha takatsukasae*) and Bridled White-eye (*Zosterops conspicillus*) from Tinian for translocation to Guguan

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Personnel

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Objectives of MAC Program 2015

1. Collect 48 Tinian Monarchs and 48 Bridled White-eye on Tinian and prepare them for translocation to Guguan
2. Assist CNMI Department of Fish and Wildlife transport and release birds on Guguan.
3. Film all aspects of MAC 2015 for the purpose of making a short film on PBC.
4. Meet with Conservation partners on Saipan to identify CNMI conservation education needs and to organize MAC education programs to meet those needs.
5. Support one local Intern to participate in this year's trapping program.
6. Collect fecal samples from captive TIMO for DAK
7. Assist Guam zoo collect 2 Micronesian Starlings, 2 Rufous fantails, 2 White-Throated Ground doves and 2 Micronesian Honeyeater.

Itinerary

6 - 8 June: Start up team arrives Saipan
8 June: Equipment picked up from container at Department of Fish and Wildlife base yard and taken to SN5 for transport to Tinian. Barge going to Tinian on 9 June.

9 June:	Start up team arrives Tinian Bird room set up. Set up trap site.
11 June:	Vet staff arrive Tinian. Trapping started.
16 June:	Close up team arrives Tinian.
20 June:	Start up crew departs Tinian Trapping completed
23 June:	target date for translocation.
27 June:	Birds translocated to Guguan via boat
28 June:	birds released on Guguan
29 June:	Close up crew returns to Saipan and puts away all field equipment in storage container.

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 Aguinguan; 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 AZA 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,
http://www.pacificbirdconservation.org
Or http://www.facebook.com/pages/The-MAC-Program/137557033010876,

Overview of Project Set Up

A total of 20 individuals from 11 institutions participated in this year's translocation. MAC team members were in the Marianas from 6 June until 1 July 2015. Peter Luscomb, Herb Roberts, Hannah Bailey and Scott Newland worked the entire length of the project. The rest of the crew came for two week periods and required three distinct groups of people arriving at different times to ensure we had adequate staff to accomplish our targeted objectives. All staff participating in field activities were required to go through an Unexploded Ordnance Awareness training program prior to us working on Department of Defense lands. All staff reviewed a PowerPoint presentation and were given a trifold brochure which they carried whenever they were in the field.

The startup crew arrived on Saipan between 6-8 June. On 8 June the crew picked up all of our field equipment from our storage container at Department of Fish and Wildlife base yard and took it to the barge company (SNFive) for transport to Tinian. The barge went to Tinian on 9 June. On 9 June the startup crew went to Tinian to start preparations for trapping. The Lorilynn Hotel was used as a base for our operations on Tinian. This hotel has been used on previous projects and has always been very accommodating. Along with having up to ten rooms at one time to accommodate all of our staff, the hotel allowed us to use a large office space for our bird room.
Hannah Bailey from Houston Zoo oversaw all activities associated with the bird room and was able to get the bird room set up and ready for birds by 11 June. Scott Newland from Sedgwick County zoo oversaw the field operations and was able to set up our crew base camp, bird holding area and set up five net lanes by the afternoon of 11 June. On 11 June the Veterinarian crew from Disney Animal Kingdom crew arrived on Tinian. Dr. Deidre Fontenot oversaw the medical review and treatment of all birds brought into captivity. On 16 June the close up crew arrived and assisted in collecting the last of the birds needed for translocation. Dr. Kami Fox from Fort Wayne Children zoo, who arrived with the close up crew, covered Vet duties when the Disney Animal Kingdom Vet crew had to depart Tinian on 20 June. The close up crew was responsible for finishing up collecting birds needed for translocation, taking down all nets, closing up the trapping site, preparing the birds for translocation and preparing all equipment for transport back to Saipan for storage. Field protocols developed previously were used to guide all activities associated with the capture, holding and transport of birds.

Trapping

All trapping activities were done on the north end of Tinian. We set up our nets in an area known as North Field, alongside the most southern runway (Fig: 1, 2). Trapping activities took place during the time period of 11 - 20 June. Initial trapping efforts focused on collecting birds for Guam zoo and as soon as those bird were collected we then focused on Tinian Monarchs and Bridled White-eye.

Figure 1: Northern portion of Tinian Island. Trap site in red.

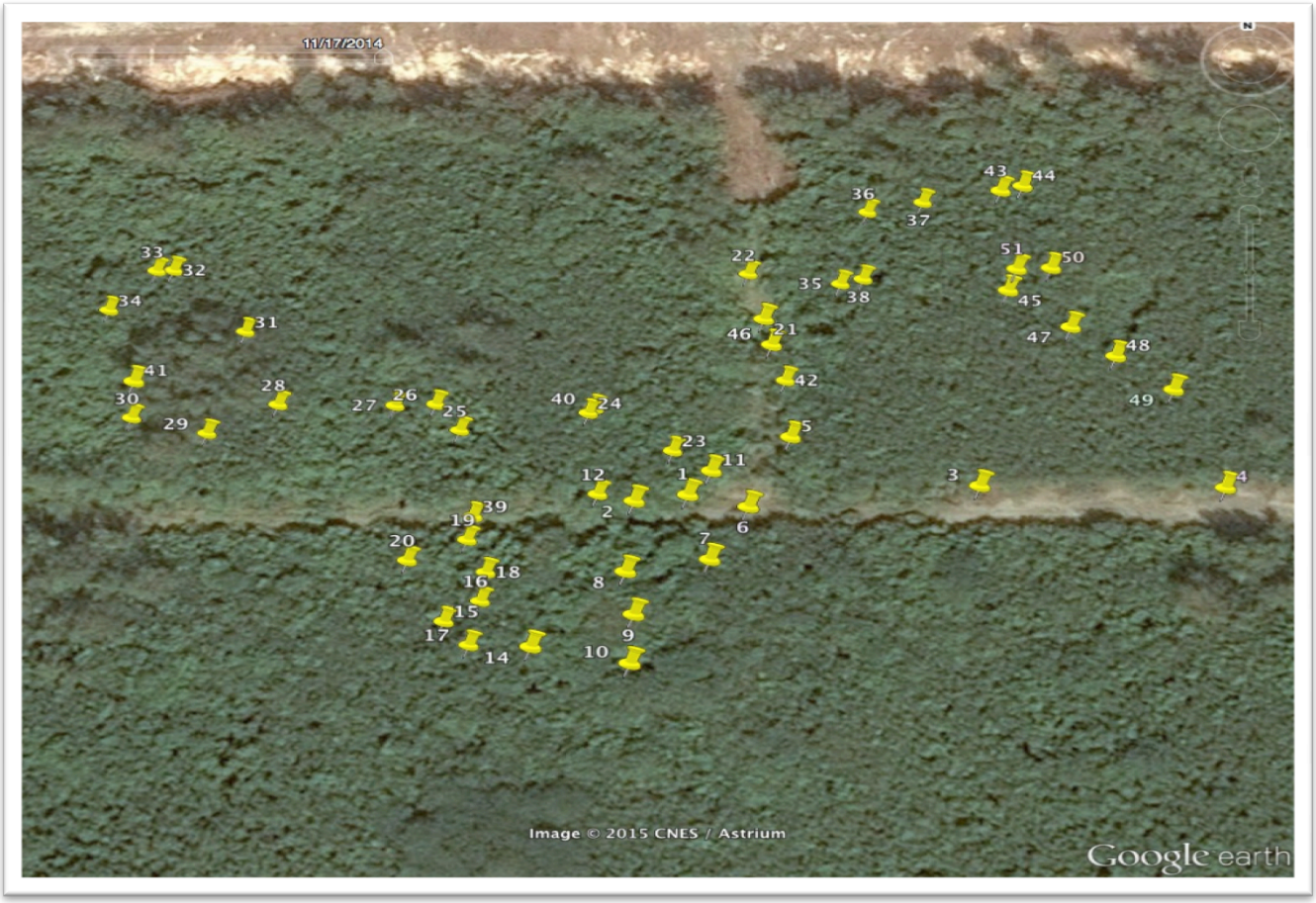

Figure 2: Location of mist nets at Trap site A

All trapping was done with the use of mist nets. A variety of size nets were used depending on the species targeted; 60mm nets were used for White Throated Ground Dove and Micronesian Starling,

24mm and 30mm nets were used for all other species. Trapping was done in a Tangan Tangan forest (*Leucaena leucocephala)* intermixed with other coastal native trees. (fig:3)

Figure 3: Interior forest net targeting TIMO

A total of 51 net sets were used over the course of 10 days of trapping, which amounted to 1824 net hours of effort. One net hour equals one 12m net open for one hour, a 9m net open for one hour would equal .75 net hours. (Table:1) When setting up nets the field crew would first scout out the appropriate habitat where target species are expected to be found. Nets would be set and then monitored. If nets were not catching birds then they would be taken down and moved to another location. The collection of Monarchs was a lot harder than anticipated and required that we move nets frequently. We ended up working as many as 25 nets on one day. To accomplish the net moves, we had a few staff members focused on locating, clearing and preparing nets sites so nets could be moved quickly to new locations as un-productive nets were taken down. All non-target species were released at the trap site once they were removed from the net.

Trapping results

A total of 435 birds from 10 species were collected. (Table: 2) The following birds were collected: 157 Bridled White-eye, 108 Rufous fantail, 61 Micronesian honeyeater, 51 Tinian monarch, 27 Micronesian starling, 16 Collared kingfisher, 9 Mariana fruit dove, 2 White-throated ground dove, 2 Island collared dove, 2 Orange-cheeked waxbill.

Guam birds

A total of 2 Micronesian starling, 4 Micronesian Honeyeater, 4 Rufous fantails and 1 White-throated Ground dove were brought into captivity for the Guam zoo. We collected more birds than needed so we were able to pick birds best suited for captive conditions. The White-throated Ground dove was released when it was found to have an egg in its distal uterus and transport would have compromised its health. We did capture one other White-throated Ground dove but it was after we had shipped the birds to Guam so it was released.

MAC 2015 Net Description, Location, and Net hours

Net	Net Description		GPS Location	11-Jun Hours Open	11-Jun Net Hours	12-Jun Hours Open	12-Jun Net Hours	13-Jun Hours Open	13-Jun Net Hours	14-Jun Hours Open	14-Jun Net Hours	15-Jun Hours Open	15-Jun Net Hours	16-Jun Hours Open	16-Jun Net Hours	17-Jun Hours Open	17-Jun Net Hours	18-Jun Hours Open	18-Jun Net Hours	19-Jun Hours Open	19-Jun Net Hours	20-Jun Hours Open	20-Jun Net Hours	
1	12m X 24mm Double	2	N15°03.816' E145°38.269'	2.00	4.00	7.50	15.00	11.50	23.00	11.50	23.00	11.00	22.00	10.25	20.50	10.25	20.50	7.50	15.00		0.00			
2	12m X 24mm Double	2	N15°03.815' E145°38.260'	2.00	4.00	7.50	15.00	11.50	23.00	11.50	23.00	11.00	22.00	10.25	20.50	10.25	20.50	12.50	25.00	11.75	23.50	3.25	6.50	
3	12m X 60mm Double	2	N15°03.816' E145°38.318'	2.00	4.00	7.50	15.00	11.50	23.00	11.50	23.00													
4	12m X 60mm Double	2	N15°03.814' E145°38.359'	2.00	4.00	7.50	15.00	11.50	23.00	11.50	23.00													
5	9m X 24mm	0.75	N15°03.828' E145°38.287'	2.00	1.50	7.50	5.63	11.50	8.63	9.50	7.13													
6	9m X 24mm	0.75	N15°03.813' E145°38.279'			7.50	5.63	11.50	8.63	9.50	7.13													
7	9m X 24mm	0.75	N15°03.802' E145°38.272'			7.50	5.63	11.50	8.63	9.50	7.13													
8	12m X 24mm	1	N15°03.800' E145°38.258'			7.50	7.50	11.50	11.50	11.50	11.50	3.50	3.50											
9	12m X 24mm	1	N15°03.791' E145°38.259'			7.50	7.50	11.50	11.50	11.50	11.50	3.50	3.50											
10	12m X 24mm	1	N15°03.781' E145°38.258'			7.50	7.50	11.50	11.50	11.50	11.50	3.50	3.50											
11	12m X 24mm Double	2	N15°03.816' E145°38.287'					11.50	23.00	5.50	11.00	11.00	22.00	10.25	20.50	10.25	20.50	9.50	19.00					
12	12m X 24mm Double	2	N15°03.817' E145°38.254'					11.50	23.00	11.50	23.00	11.00	22.00	10.25	20.50	9.00	18.00							
14	12m X 24mm	1	N15°03.785' E145°38.242'					11.50	11.50	11.50	11.50	11.00	11.00	5.25	5.25									
15	12m X 24mm	1	N15°03.791' E145°38.228'					11.50	11.50	11.50	11.50	11.00	11.00	10.25	10.25	4.25	4.25							
16	12m X 24mm	1	N15°03.795' E145°38.234'					11.50	11.50	11.50	11.50	11.00	11.00	10.25	10.25	4.25	4.25							
17	12m X 24mm	1	N15°03.786' E145°38.232'					11.50	11.50	11.50	11.50	11.00	11.00	10.25	10.25	4.25	4.25							
18	12m X 24mm	1	N15°03.801' E145°38.235'					11.50	11.50	11.50	11.50	11.00	11.00	5.25	5.25									
19	12m X 24mm	1	N15°03.808' E145°38.232'					11.50	11.50	11.50	11.50	11.00	11.00	10.25	10.25	10.25	10.25	5.75	5.75					
20	12m X 24mm	1	N15°03.804' E145°38.222'					11.50	11.50	11.50	11.50	11.00	11.00	10.25	10.25	10.25	10.25	5.75	5.75					
21	9m X 24mm	0.75	N15°03.855' E145°38.284'									11.00	8.25	5.25	3.94									
22	9m X 24mm	0.75	N15°03.866' E145°38.282'									11.00	8.25	5.25	3.94									
23	12m X 24mm	1	N15°03.826' E145°38.267'									4.50	4.50	10.25	10.25	4.25	4.25							
24	12m X 24mm	1	N15°03.835' E145°38.253'									4.50	4.50	10.25	10.25	10.25	10.25	4.00	4.00					
25	12m X 24mm	1	N15°03.832' E145°38.231'									4.50	4.50	10.25	10.25	10.25	10.25	4.50	4.50					
26	12m X 24mm	1	N15°03.838' E145°38.227'									4.50	4.50	10.25	10.25	10.25	10.25	4.50	4.50					
27	12m X 24mm	1	N15°03.838' E145°38.220'											4.50	4.50	10.25	10.25	12.50	12.50	9.25	7.25			
28	12m X 24mm	1	N15°03.839' E145°38.200'											4.00	4.00	10.25	10.25	12.50	12.50	9.25	7.25			
29	9m X 24mm	0.75	N15°03.833' E145°38.188'											3.50	2.63	10.25	7.69	12.50	9.38	3.25	2.44			
30	9m X 24mm	0.75	N15°03.837' E145°38.175'											3.50	2.63	10.25	7.69	12.50	9.38	3.00	2.25			
31	12m X 24mm	1	N15°03.856' E145°38.194'													3.50	3.50	12.50	12.50	3.00	2.50			
32	12m X 24mm	1	N15°03.871' E145°38.181'													3.50	3.50	12.50	12.50	11.75	11.75	3.25	3.25	
33	12m X 24mm	1	N15°03.871' E145°38.178'													3.50	3.50	12.50	12.50	11.75	11.75	3.25	3.25	
34	12m X 24mm	1	N15°03.862' E145°38.170'													3.50	3.50	12.50	12.50	11.75	11.75	3.25	3.25	
35	12m X 24mm	1	N15°03.863' E145°38.298'													1.75	1.75	12.50	12.50	11.75	11.75	3.25	3.25	
36	12m X 24mm	1	N15°03.880' E145°38.304'													1.00	1.00	12.50	12.50	11.75	11.75	3.25	3.25	
37	12m X 24mm	1	N15°03.882' E145°38.314'													0.50	0.50	12.50	12.50	11.75	11.75	3.25	3.25	
38	9mm X 24mm	0.75	N15°03.864' E145°38.302'															11.50	8.63	11.75	8.81	3.25	2.44	
39	9mm X 24mm	0.75	N15°03.813' E145°38.233'															9.25	6.94	6.25	4.69			
40	12m X 24mm	1	N15°03.836' E145°38.254'															8.25	8.25	9.00	7.00			
41	12m X 24mm	1	N15°03.845' E145°38.175'															7.50	7.50	11.75	11.75	3.25	3.25	
42	12m X 24mm Double	2	N15°03.841' E145°38.287'															7.00	14.00	5.00	10.00			
43	12m X 30mm	1	N15°03.884' E145°38.328'															3.25	3.25	11.75	11.75	3.25	3.25	
44	12m X 30mm	1	N15°03.885' E145°38.332'															3.00	3.00	11.75	11.75	3.25	3.25	
45	12m X 30mm	1	N15°03.860' E145°38.327'															1.50	1.50	11.75	11.75	3.25	3.25	
46	12m X 24mm Double	2	N15°03.849' E145°38.285'															2.50	5.00	5.00	10.00			
47	9m x 30mm	0.75	N15°03.851' E145°38.337'																	7.25	5.44	3.25	2.44	
48	9m x 30mm	0.75	N15°03.844' E145°38.344'																	6.75	5.06	3.25	2.44	
49	9m x 30mm	0.75	N15°03.836' E145°38.353'																	6.50	4.88	3.25	2.44	
50	9m x 30mm	0.75	N15°03.865' E145°38.335'																	2.75	2.06	3.25	2.44	
51	9m x 30mm	0.75	N15°03.865' E145°38.329'																	2.50	1.88	3.25	2.44	
	Total Net Hours				18		99		279		262		210		206		201		273		223		54	1824

Table 1: Net Description, Location, and Net hours

We were eventually able to ship 2 Micronesian starlings, 2 Micronesian Honeyeater, and 2 Rufous fantails to Guam zoo for their educational display program.

Husbandry

A total of 51 Tinian monarchs and 54 Bridled white-eye were brought into captivity for translocation. After birds were captured in the field, they were taken within 2 hours back to the climate-controlled bird holding room at the LoriLynn Hotel on Tinian. Tinian monarchs were hosed singly in individual holding cages while Bridled white-eyes were housed as pairs. Three husbandry shifts daily were required to care for the animals while in holding for 2 weeks prior to translocation. All birds were given a full health assessment (Table 3) on their first day of capture by MAC veterinary staff (Deidre Fontenot, DVM, Leanne Blinco, and Lydia Castro, Disney's Animal Kingdom; and Kami Fox, DVM, Fort Wayne Children's Zoo), tested for parasites, weights checked daily, and data were taken on several measurements such as fat stores, body condition, wing cord, tail length, and tarsus length as needed for each species. Each monarch and white-eye was marked with a MAC aluminum numbered leg band and a unique combination of three colored bands, to allow for identification in the field during future CNMI DFW surveys.

Dr Fontenot and Hannah Bailey doing health exams on birds.

Top left, Steve Howard – Houston Zoo, Top right, Field Falcone – Memphis Zoo,
Bottom left, one of three racks of cages, Bottom right: Sydney Oliveira – St Louis Zoo.

Top left; Chris Johnson - St Louis Zoo, Justin Grubb -Toledo Zoo, Rob Mortensen - Aquarium of the Pacific and Peter Bibeault – Audubon Zoo , Top right; Ellen Gorrell – Toledo Zoo, Bottom left; Paul Shulz - Disney Animal Kingdom, Bottom right; Leanne Blinco and Lidia Castro – Disney Animal Kingdom

MAC 2015
List of Species Caught by Net

Net No.	Species*										Total captures
	BRWE	RUFA	MIHO	TIMO	MIST	COKI	MAFD	WTGD	ISCD	OCHW	by net
TA01	4	2	2	0	9	1	2	0	0	0	20
TA02	30	7	6	4	9	1	6	0	0	0	63
TA03	1	2	0	0	1	0	0	0	1	0	5
TA04	1	0	0	0	0	2	0	0	0	0	3
TA05	6	2	0	0	0	0	0	0	0	1	9
TA06	3	2	1	1	0	2	0	0	0	0	9
TA07	0	2	1	0	0	1	0	0	0	0	4
TA08	0	1	0	0	0	0	0	0	0	0	1
TA09	0	1	1	1	3	0	0	0	0	0	6
TA10	0	0	0	1	0	0	0	0	0	0	1
TA11	51	5	10	1	1	1	1	0	0	1	71
TA12	15	4	4	1	0	1	0	0	1	0	26
TA14	0	2	6	4	0	0	0	1	0	0	13
TA15	2	4	1	1	0	1	0	0	0	0	9
TA16	1	2	1	1	0	0	0	0	0	0	5
TA17	6	2	1	5	0	0	0	0	0	0	14
TA18	0	0	0	0	0	0	0	0	0	0	0
TA19	1	3	1	4	0	0	0	0	0	0	9
TA20	2	2	2	6	1	0	0	0	0	0	13
TA21	1	1	1	0	0	0	0	0	0	0	3
TA22	0	1	0	0	0	0	0	0	0	0	1
TA23	1	1	0	0	1	1	0	0	0	0	4
TA24	0	3	1	0	0	0	0	0	0	0	4
TA25	0	1	0	1	0	0	0	0	0	0	2
TA26	0	1	0	0	0	0	0	0	0	0	1
TA27	3	5	3	0	0	0	0	0	0	0	11
TA28	1	4	0	0	0	0	0	0	0	0	5
TA29	0	3	1	1	0	0	0	0	0	0	5
TA30	1	1	3	2	0	0	0	0	0	0	7
TA31	0	4	0	1	1	0	0	0	0	0	6
TA32	0	1	2	3	0	0	0	0	0	0	6
TA33	3	1	1	2	0	1	0	0	0	0	8
TA34	1	3	1	0	0	2	0	0	0	0	7
TA35	0	4	2	1	0	0	0	0	0	0	7
TA36	0	3	2	3	0	1	0	0	0	0	9
TA37	0	8	1	0	0	0	0	0	0	0	9
TA38	0	5	1	1	0	0	0	0	0	0	7
TA39	2	0	0	1	0	1	0	0	0	0	4
TA40	1	1	1	0	0	0	0	0	0	0	3
TA41	0	0	0	1	0	0	0	0	0	0	1
TA42	10	3	0	1	0	0	0	0	0	0	14
TA43	0	3	2	1	0	0	0	0	0	0	6
TA44	1	1	0	0	0	0	0	1	0	0	3
TA45	1	6	1	1	0	0	0	0	0	0	9
TA46	7	0	0	0	1	0	0	0	0	0	8
TA47	0	1	0	0	0	0	0	0	0	0	1
TA48	0	0	1	0	0	0	0	0	0	0	1
TA49	1	0	0	1	0	0	0	0	0	0	2
TA50	0	0	0	0	0	0	0	0	0	0	0
TA51	0	0	0	0	0	0	0	0	0	0	0
Total captures by species	157	108	61	51	27	16	9	2	2	2	Total 435

Table 2:
BRWE - Bridled white-eye, RUFA - Rufous fantail, MIHO - Micronesian honeyeater,
TIMO - Tinian monarch, MIST - Micronesian starling, COKI - Collared kingfisher
MAFD - Mariana fruit-dove, WTGD - White-throated ground-dove, IWCD - Island collared-dove, OCHW - Orange cheeked waxbill

Translocation

This year marked a new translocation protocol for the MAC team – transport via boat rather than helicopter. The distance from Tinian to Guguan (160 mi) is over the limit of a helicopter to fly from Tinian to Guguan and back unless it could be refueled on Sarigan. Since we were not able to make arrangements to stock pile fuel on Sarigan, our only option was to utilize a boat. The CNMI government secured a 60 foot Japanese fishing boat that was retro-fitted with air conditioning in the crew quarters so we had a climate-controlled holding area for the birds. The boat transported the birds, a CNMI DFW field survey crew, and a few MAC participants to assist in releasing the birds. The trip was delayed 4 days, but finally the team left with a total of 50 bridled white-eyes, 46 Tinian monarchs, and 5 MAC members.

On 27 Jun 2015 the translocation began, with a 19 hour one way trip overnight to the island of Guguan. The translocation team arrived at Guguan at 1100 hrs. The boat anchored about 100m off shore and a small crew headed to the island to make preparations for the birds. After reviewing the beach and adjoining forest area, a site was identified for the release of birds. DFW staff then proceeded to cut a trail from the beach up to our release site. The release site was approximately 100m from our beach landing area. Once everything was ready for the birds the birds were transported to the beach by a small skiff. Because of concerns with the bird's safety three crews were set up. One crew remained on the boat and oversaw the transfer of birds from the boat to the skiff, the second crew remained on the skiff and transferred the birds from the boat to the island, the last crew was stationed on the island where they received the birds from the skiff. The landing area was rock cliff that was approximately 3' above the water line. When the skiff arrived at the landing area, the crates of birds had to be handed up to the staff on the landing zone being careful not to drop them into the water. Once the crate was on solid ground the crate was placed on a pack frame. Two crates were placed on each pack frame. As soon as both crates were secure on the pack frame they were then carried up to the release site. Dr. Kami Fox remained at the release site to monitor the crates of birds. The transfer of birds from the boat to Guguan started at 1200 hrs. All 16 crates of birds were at the release site by 1300 hrs. A total of 96 birds were released on Guguan. One TIMO was found to have a broken leg that was caught behind its feeding dish support bracket. The leg was amputated by Kami Fox DVM and then released. Two BRWE came out of their box, flew to the ground and proceeded to sit. Both birds eventually adjusted to their surroundings and flew off.

The MAC team then helped the CNMI crew hike supplies into their camp on the uninhabited island. The crew planned 10 days of post-release surveys to compliment the translocation effort. Unfortunately, within 2 days bad weather developed and the survey crew had to abort their mission and move to safety, returning to Saipan where they are based. We hope to hear from the CNMI DFW in the coming months that another survey will take place. Next year we return to catch and move the same species, as the goal for each species is approximately 100 birds for the seed population on the new islands. If no surveys are conducted in 2015, the CNMI biologists will return next year and follow up with surveys of both this year's and next year's releases.



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Top Left: getting ready to unload birds into skiff, Top right; transferring birds from skiff to island

Middle left: Steve Mullin – CNMI DFW, Middle right: Rob Mortensen carrying birds up to release site.

Bottom left: Kami Fox Fort Wayne Children's Zoo inspecting birds, Bottom left: everyone watching bird release.

Supplemental Objectives

3. Develop a short documentary on PBC and MAC

Justin Grubb from the Toledo Zoo film department participated in this year's project with the objective of filming all aspects of our work. Justin was able to document our efforts in mist netting birds, care of birds, preparations for translocation, translocation and finally the release of birds. Justin is developing a short documentary for Toledo zoo as well as a short film for Pacific Bird Conservation to provide new media and outreach opportunities for PBC and the MAC Program

Justion Grubb – Toledo Zoo

4. MAC Education and Outreach

DAK veterinary staff members, long term participants in MAC, have initiated a community education and outreach program to communicate our conservation objectives to students, educators, and the general public. In 2015, the MAC Program welcomed Kelly Reno, Education Director at the Honolulu Zoo, who will coordinate education objectives for MAC and other PBC ventures.

MAC education coordinator – Kelly Reno

Stake Holder meeting

Reno participated in field work on Tinian this year and will work closely with DAK staff who have spearheaded the outreach efforts over the last few years. While in the CNMI, a meeting was arranged so MAC staff could meet is local conservation stake holders (representatives from local secondary schools, local conservation NGOs and CNMI Fish and Wildlife staff) to identify their conservation priorities for CNMI so MAC can better meet their needs.

5. Support a local college student for an internship for MAC 215

This year the MAC team welcomed its second local CNMI intern, Reba Ourun a junior at the University of Guam and a native of Yap. Reba participated in all aspects of field and husbandry work for two weeks on Tinian, and proved to be a valuable member of the 2015 team. MAC plans to continue the internship program during our annual field season in the CNMI. Reba is getting a douple major in biology and creative writing and plans to publish articles on Pacific conservation. This Intern program supported by the Hutchinson Friends of the Zoo

MAC Intern: Reba Ourun

6. Avian Stress Response Research

Disney's Animal Kingdom (DAK) has been conducting a multi-year study of the stress hormone cortisol in CNMI birds since 2011. These efforts are designed to develop a method to monitor the health of birds in holding prior to translocation to compliment weight data. Preliminary data from 2011 showed that stress decreased in most Rufous fantails sampled, while weight increased in all birds (Graham et al. 2012). In 2015 the MAC team collected fecal samples from 20 Tinian monarchs immediately in the field when captured (for baseline cortisol measures) and for 5 days in holding. Results from the last three years' sample collections are pending.

In addition to these outreach efforts, Erica Hussey, a science writer, joined the 2015 team on behalf of PBC and plans to write in popular science magazines about the project and her experience

Typhoon Soudelor

We returned to our respective homes in the US, and shortly thereafter on 2 Aug 2015, the island of Saipan suffered the eye of Typhoon Soudelor, the strongest storm of the 2015 season. Damage is immense, the island was declared a FEMA disaster, and recovery will take years. Power is expected to be out for months for most of the island, and now 10 days after the storm hit most residents still do not have running water. Habitat was flattened all over the island.

Soudelor was the strongest storm to hit the CNMI in 30 years. The beauty and cultural history of these islands leave all MAC participants committed to the CNMI's welfare (Fig: 5). MAC team members will weigh the impacts of the storm on the Program objectives in the coming years, and send our best wishes to all the residents of the CNMI as they recover from this catastrophe.

Left: Coconut palms at Chulu Beach (aka "White 2"), one of the sites where the US Marines landed to take Tinian from the Japanese. Old runways on this island are the site where the US launched planes carrying the atomic bombs that fell on Hiroshima and Nagasaki, Japan, which led to the end of WWII. (Right) Old flame trees shading the remnants of a 1940's Japanese Shinto shrine. Flame trees, native to Madagascar, were first planted in the Marianas in the 1960's and now inspire festivals, art, love, and faith here in the islands.

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Hutchinson Friends of the Zoo
Karen and Jeffry Lynn
Memphis Zoo
North Carolina Zoo Society
Phoenix Zoo
Sedgwick County Zoo
Toledo Zoo

Co-founders Pacific Bird Conservation: Herb Roberts (left) Peter Luscomb (right)

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