

# The Census of Migrant and Native Birds in Heredia, Costa Rica

## Abstract:

During the field research when we are down in Costa Rica, we will be capturing, cataloging, and tracking the birds in the rainforest. The team will be working with Sean Graesser, who is a bird expert from the National Audubon Society. He is going to help us track the flight patterns, identify each of the species, measure their features like beak length, wingspan, feather color, fat level, age, and sex of the bird etc.. There are many things we need to understand about these species of birds, like bird calls, footprints, flight patterns, and feather color. At least 12 hours a day will be spent on setting up, analyzing, and recording the data to conduct our research: setting up around 5:30, checking the nets every 45 minutes and closing when it starts raining because birds don't fly well when they're wet, or at the end of the day around 6:00 o'clock because we don't want to leave them up over night for birds to get caught and freeze to death. After identifying the species, we band the bird. If it is an migrant bird. The purpose of banding a migrant bird is to see if it comes back to the same location the following year and to understand the flight pattern movement the bird takes. The data inform us about the health of the rainforest. If a migrant bird comes back to the same place the following year, its one indicator of the health of the rainforest. If a species has not come back for years, it may be a result of deforestation in their migration.

## Introduction:

The birds team is one of the oldest teams of the Rainforest Tropical Ecology Project which is going on its 25th year of study for the project; this year, the two students taking part in this project are Wyatt Sherburne '18 and Zaccaria Orio '18. The purpose of the bird team is to document the population of birds in Costa Rica because a lot of bird species are threatened or endangered, not just in tropical areas but also all around the world. Costa Rica has 850 species with 630 of them being native species, and 22 species of these birds are endangered or threatened. We are trying to make sure these bird species don't go extinct by collecting data to monitor the population. Our goal is to track different birds in Costa Rica , mainly the migratory birds, so we can band them and find out if they will return to the same location next year. We keep track of these species and set our data to Cornell Lab of Ornithology to inform the status of whether any more species are endangered or extinct.

## Methods:

In Heredia, Costa Rica, mist nets are used to catch migratory and local birds. The following are needed to setup up a mist net: 2 steel rebars, 2 stakes, 2 poles , rope, and a mist net. We use closely-knitted nets for smaller-sized birds. The nets are not taut and the threads are fine, so they allow some give like a pocket when birds fly into them.

There is a process to set up these nets to make sure they don't go unsteady and fall over because of wind, a large bird or from the rain, which might move the mud where the net poles are.

1. Hammer two steel rebars in the ground.
2. Put the panels on the poles.
3. Place the poles on the rebars.
4. Make sure the nets are not super tight and not touching the ground.
5. Place two stakes and hammer them into the ground on opposite sides of the pole.
6. Tie a knot on each stake with a rope to the pole to keep it in place so it does not fall over.

Results:

We caught 31 different species of birds from 53 birds in the two base camps this year. The first day at base camp one in Plastico was the day we caught the most birds because it was not as humid and warm as the rest of the days, it was also raining a lot more at our second base camp in Rara Avis.

Local

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Phaethornis guy	Juvenile	Female	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
7:00	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Mionectes Olivaceus	Adult	Unknown	3

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
7:30	3				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Amazilia rutila	Juvenile	Unknown	Unknown

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
7:30	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Phaethornis longirostris	Juvenile	Unknown	Unknown

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
8:40	3				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Sporophia corrina	Juvenile	Female	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
9:45	5				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Sporophia corrina	Juvenile	Female	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
11:00	2				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Sporophia corrina	Juvenile	Male	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
11:00	2				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Sporophia corvina	Juvenile	Female	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
12:10	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Tangara larvata	Juvenile	Unknown	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
13:15	4				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Sporophia corvina	Juvenile	Female	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
13:30	4				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018		Cyanerpes cyaneus	Juvenile	Female	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
13:30	4				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Saltator maximus	Juvenile	Unknown	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
13:30	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Ramphocelus passerinii	Juvenile	Female	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
13:30	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Cyanerpes lucidus	Adult	Breeding male	0

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
15:30	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Cyanerpes lucidus	Juvenile	Nonbreeding male	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
15:30	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Cyanerpes lucidus	Adult	Breeding male	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
15:30	1				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Attila spadiceus	Juvenile	Unknown	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
16:00	3				

Date	Station	Species name	Age	Sex	Fat
1 Mar 2018	El Plastico	Automolus ochrolaemus	Juvenile	Unknown	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
17:30	3				

Date	Station	Species name	Age	Sex	Fat
2 Mar 2018	El Plastico	Mionectes olivaceus	Juvenile	Unknown	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
14:15	4				

Date	Station	Species name	Age	Sex	Fat
2 Mar 2018	El Plastico	Cyanerpes cyaneus	Juvenile	Nonbreeding male	4
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
15:00	4				

Date	Station	Species name	Age	Sex	Fat
2 Mar 2018	El Plastico	Cyanerpes cyaneus	Juvenile	Nonbreeding male	3
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
16:40	5				

Date	Station	Species name	Age	Sex	Fat
2 Mar 2018	El Plastico	Automolus ochrolaemus	Adult	Unknown	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
17:40	4				

Date	Station	Species name	Age	Sex	Fat
3 Mar 2018	El Plastico	Caryothaustes poliogaster	Juvenile	Unknown	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
6:45	1				

Date	Station	Species name	Age	Sex	Fat
3 Mar 2018	El Platico	Caryothaustes poliogaster	Juvenile	Unknown	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
6:45	2				

Date	Station	Species name	Age	Sex	Fat
3 Mar 2018		Caryothautes poliogaster	Juvenile	Unknown	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
6:45	2				

Date	Station	Species name	Age	Sex	Fat
3 Mar 2018	El Plastico	Manacus condei	Juvenile	Female	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
7:00	5				

Date	Station	Species name	Age	Sex	Fat
3 Mar 2018	El Plastico	Dendrocincla fulinosa	Juvenile	Unknown	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
7:00	7				

Date	Station	Species name	Age	Sex	Fat
3 Mar 2018	El Plastico	Trogon rufus	Juvenile	Female	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
18:00	10				

Date	Station	Species name	Age	Sex	Fat
4 Mar 2018	El Plastico	Dacnis cayana	Adult	Female	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
14:00	5				

Date	Station	Species name	Age	Sex	Fat
4 Mar 2018	El Plastico	Attila spadiceus	Juvenile	Unknown	3
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
16:30	3				

Date	Station	Species name	Age	Sex	Fat
4 Mar 2018	El Plastico	Mionectes oleagineus	Juvenile	Unknown	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
16:45	6				

Date	Station	Species name	Age	Sex	Fat
5 Mar 2018	El Plastico	Mionectes oleagineus	Juvenile	Unknown	3

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
17:00	2				

Date	Station	Species name	Age	Sex	Fat
5 Mar 2018	Rara Avis	Chrysothlypis chrysomela	Adult	Male	2

  

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
17:15	3				

Date	Station	Species name	Age	Sex	Fat
6 Mar 2018	Rara Avis	Thalurania columbica	Juvenile	Female	2

  

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
8:45	3				

Date	Station	Species name	Age	Sex	Fat
6 Mar 2018	Rara Avis	Colibri delphinae	Adult	Unknown	2
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
9:00	3				

Date	Station	Species name	Age	Sex	Fat
6 Mar 2018	Rara Avis	Thalurania columbica	Juvenile	Male	2
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
10:30	1				

Date	Station	Species name	Age	Sex	Fat
6 Mar 2018	Rara Avis	Thalurania columbica	Juvenile	Female	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
13:30	1				

Date	Station	Species name	Age	Sex	Fat
6 Mar 2018	Rara Avis	Trogon rufus	Adult	Female	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
13:30	2				

Date	Station	Species name	Age	Sex	Fat
6 Mar 2018	Rara Avis	Phaethornis guy	Juvenile	Male	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
15:00	2				

Date	Station	Species name	Age	Sex	Fat
6 Mar 2018	Rara Avis	Mionectes olivaceus	Adult	Unknown	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
16:00	2				

Date	Station	Species name	Age	Sex	Fat
7 Mar 2018	Rara Avis	Thalurania columbica	Juvenile	Male	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
9:00	2				

Date	Station	Species name	Age	Sex	Fat
7 Mar 2018	Rara Avis	Myrmeciza exsul	Juvenile	Female	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
9:00	2				

Date	Station	Species name	Age	Sex	Fat
7 Mar 2018	Rara Avis	Xiphorhynchus susurrans	Juvenile	Unknown	2

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
9:00	2				

Date	Station	Species name	Age	Sex	Fat
7 Mar 2018	Rara Avis	Electron platyrhynchum	Adult	Unknown	1

Time	Net	Wing Measurement	How Aged	How Sexed	CLP
14:00	4				

Date	Station	Species name	Age	Sex	Fat
7 Mar 2018	Rara Avis	Chrysothlypis chrysomelas	Juvenile	Female	1
Time	Net	Wing Measurement	How Aged	How Sexed	CLP
14:45	3				
Migrant:					

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
1 Mar 2018	El Plastico	Geothlypis tolmieri/Geothlypis tolmiei		Adult	Male	2500-58635	1	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
10:15	3	50 mm	?	Molt	P	0	0	0

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
1 Mar 2018	El Plastic 0	Setophaga pensylvanica		Adult	Unknown	2500-58632	1	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
17:15	5		10.5 g	Molt		0	0	0

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
2 Mar 2018	El Plastic 0	Vermivora chrysoptera		Adult	Unknown	2500-58636	2	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
7:30	1	47.5 mm	9 g			0	0	0

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
2 Mar 2018	El Plastico	Setophaga pensylvanica		Adult	Unknown	2500-58637	2	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
13:30	5		10 g	P		0	0	0

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
3 Mar 2018	El Plastico	Geothlypis philadelphia		Adult	Male	2500-58638	2	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
11:45	7	60.9 mm	12 g			0	0	0

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
4 Mar 2018	El Plastico	Hylocichla mustelina		Adult	Unknown	2241-63994	1	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
6:45	3	97 mm	46 g	Molt	Unknown	0	0	0

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
4 Mar 2018	El Plastico	Hylocichla mustelina		Adult	Unknown	2291-63995	1	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
16:45	11	110 mm	55 g		Unknown	0	0	0

Date	Station	Species name	Alpha code	Age	Sex	Band #	Fat	Body MLT
4 Mar 2018	El Plastico	Hylocichla mustelina		Adult	Unknown	2291-63996	1	0
Time	Net	Wing measurement	Weight	How aged	How sexed	BP	CLP	FF MLT
19:00	3	111 mm	55 g	Molt	Unknown	0	0	0

#### Analysis:

Overall, the birds team had noticed a few things about this field research of birds in Costa Rica. With Wyatt Sherburne, Zaccaria Orio, and Sean Graesser, we were very successful with catching and analyzing different birds in Heredia, Costa Rica. We did catch many more birds in our first base camp than our second, but we have still caught some amazing things in both base camps. One thing we caught in El Plastico was a hybrid between two different warblers, this has been the first time that's happened on the rainforest team in the past 25 years for the project. In Rara Avis, we caught two different birds that have not been caught in the project for a long time, one was the Electron platyrhynchum, and the other was the Colibri delphinae.