Rose Atoll National Wildlife Refuge / Marine National Monument

August 30 – September 3, 2016 Trip Report, USFWS

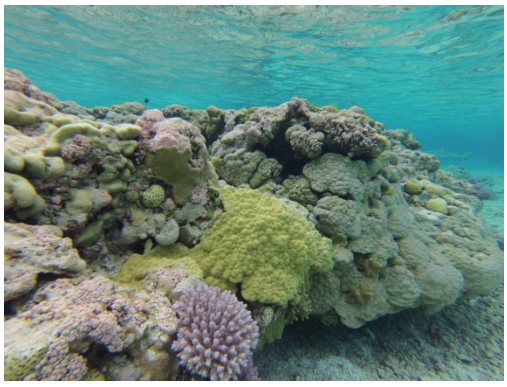
http://www.fws.gov/refuge/Rose_Atoll/

http://www.fws.gov/refuge/rose_atoll_marine_national_monument/

Six participants travelled aboard the 39 ft chartered vessel Double Barrel and visited Rose Atoll from August 30 to September 3, 2016: Brian Peck (USFWS), Alice Lawrence (Department of Marine and Wildlife-Coral Reef Advisory Group (DMWR-CRAG)), Douglas Fenner (NOAA contractor), Kim Kayano (DMWR), Motusaga Vaeoso (DMWR-CRAG), and Kim McGuire (DMWR-CRAG). The purpose of this trip was to conduct baseline seabird and coral community monitoring, control coconuts, and remove marine debris. We camped on the southeast shore of Rose Island in order to avoid extensive Sooty Tern nesting colonies.

Coral Reef Surveys: Alice Lawrence and Douglas Fenner led snorkel based surveys of coral blocks on the reef flat inside of the lagoon.

Alice Lawrence, Motusaga Vaeoso, and Kim McGuire surveyed and took photo quadrants on a total of 65 coral blocks in the southeast, southwest, and northwest portions of the lagoon. DMWR will be providing a summary of the data collected on giant clams, sea cucumbers, COTS, urchins, and algae.



Douglas Fenner provided his raw data and the following summary: I surveyed coral species on 47 blocks, but missed some blocks which the others did because it took me longer to do blocks. There were an average of 7.8 hard coral species per block, and 8.5 species when soft corals were included with hard. There were a total of 54 hard coral species plus two soft corals. There are 7 new records for Rose, and several possible new species, both need skeleton samples to confirm. I calculated for each species how many blocks it was on, and found that one species was on 96% of blocks, 24 species were only on one block each. There were only a few species that were on most blocks, and many species that were on few blocks. That's a typical finding. Also, the modal abundance estimate per block was "rare" for 43 species, "uncommon" for 6 species, and "dominant" for one species. No species had "abundant" or "common" as their modal abundance. So the two measures both indicate that most species were relatively rare, a common finding.

Green Sea Turtles: There was 1 fresh turtle track and four old on Rose Island on August 30 upon arrival. I raked these clean. There was one new track on both September 1 and 2 located on the southeast side of the island. We observed one female on the night of August 30. She had dug one test pit and was moving through the Tournefortia shrubs when we left her.

I did not visit Sand Island during this trip.

The following table shows the number of turtle tracks observed daily (from the previous night) at Rose and Sand Islands for each visit between October 2015 and September 2016.

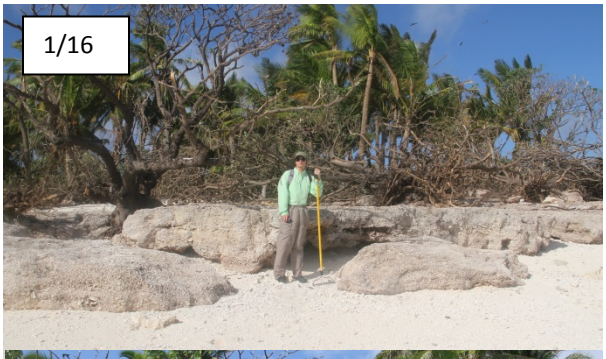
Date	**Rose Island # fresh tracks**	**Sand Island # fresh tracks**
10/3/15	2 (Raked 8 clean)	0 (Raked 8 clean)
12/2/15	0 (Raked 19 clean)	Didn't check
12/3/15	1	0 (Raked 7 clean)
12/4/15	1	0
12/5/15	2	0
12/6/15	5	0
12/7/15	2	1
12/8/15	4	1
1/26/16	0 (Raked 18 clean)	0
1/27/16	2	0
1/28/16	2	0
3/21/16	0 (Raked 2 clean)	0
3/22/16	0	Didn't check
3/23/16	0	Didn't check
4/1/16	0	Didn't check
4/2/16	0	Didn't check
4/3/16	0	0
8/30/16	1 (Raked 5 clean)	Didn't check
9/1/16	1	Didn't check
9/2/16	1	Didn't check

Cyclone Victor Recovery Assessment: Tropical Cyclone Victor passed within about 125 statute miles to the east of Rose Atoll on January 16 and 17, 2016 with winds at that time estimated to be 75 knots (Howard Diamond, World Data Center for Meteorology at NOAA, pers. comm. 2/8/16). The modeled storm waves were estimated at 30 ft.

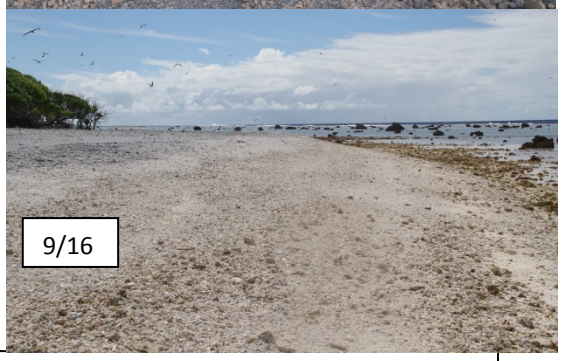
Most of the damaged Tournefortia shrubs along the south facing beachfront continued to have new growth sprouting from broken limbs or trunks. There were also new starts less than a foot tall growing in the coral rubble beach front.

We conducted beach profiles to quantitatively measure the changes in the beach at two locations along the south shore of Rose Island. Comparison data will be presented in future reports.

Pre and Post Cyclone Victor Photos:



Note initial beach erosion with newly exposed lithified coral ledge and uprooted and damaged Tournefortia (1/16). New coral rubble deposition up to 2 feet (4/16), eroded again (9/16).



Beach continuing to rebuild with new coral rubble berm about 4 feet high.

Beach and Tournefortia erosion with subsequent deposition.

Note angled large coral block on right/lower right side.

Seabird Transects: Upon arrival, we noticed extensive Sooty Tern nesting colonies almost completely encircling Rose Island. The nesting appeared to be in the footprint of the inundation area from Cyclone Victor, which was still largely devoid of underbrush and had extensive broken branches scattered on the ground. We attempted to conduct the normal seabird survey (Minimum Incubation Count) transects on September 1, but were unable to due to the Sooty Tern colonies. Instead we conducted one long meandering count, stopping approximately every 7.5 meters to record data. There were numerous Black Noddies on nests, along with Red Footed Boobies, Brown Boobies, Frigatebirds, and Brown Noddies. One Long Tailed Cuckoo was observed.

On September 2 we conducted a Sooty Tern colony boundary survey, mapping the perimeter and estimating densities of nesting terns. All terns appeared to be on eggs, we did not observe any chicks.

Kim Kayano conducted shorebird surveys on Rose Island on August 31 and September 1 and provided the following information. A total of 16 Pacific Golden Plover, 11 Ruddy Turnstone, and 1 Wandering Tattler were detected on island.

Surveys were undertaken by walking the perimeter of the island and by scanning for birds ahead using binoculars and a spotting scope. As much as possible, effort was made to keep from double counting individuals but the features of the island made it difficult as birds flew out of line of sight. The survey was conducted during low tide, and much of the sandbank was exposed for use. However, this area was completely exposed to full sun during the survey and temperature was very high which may have affected activity levels. Even with this increased potential feeding area, available habitat did not seem optimal for shorebird usage.

It is very likely that Rose Island is used as a stopover site by migrating shorebirds, and unlikely that individuals are residing on the island for extended periods of time as feeding habitat seemed in low abundance and quality. Therefore, turnover rates must be high with new individuals continuously arriving on island while others depart.

In addition, Kim Kayano conducted a census of the Brown Noddy nesting colony from a stationary point using a spotting scope. The colony occupied the northern end of the island that was barren of vegetation. Nests were situated just out of pecking reach from each other. 133 adult pairs were counted attending a nest (either one parent incubating, or one parent incubating as the other stood next to the nest) and 18 downy chicks were counted unattended by an adult. Brown Noddy nests were also seen throughout the vegetated portion of the island in areas unoccupied by Sooty Terns.

Coral Bleaching: We conducted several snorkel surveys of the shallow reef to the south of Rose Island. No new bleaching was present, with some corals that had been bleached last season algae covered on the top inch.

Marine Debris: Typical quantities (3 bags) and types of marine debris were collected along the shoreline at Rose Island. We did not visit Sand Island. We recorded the types of debris using the DMWR data collection sheet. The following table shows the number by type of debris collected.

Type	**Rose**	**Sand**	**Total for this Trip**	**Cumulative Total (9/16 – 9/16; 1 trip)**
Plastic bottles	34	NA	34	34
Plastic food containers	2	NA	2	2
Plastic pieces	24	NA	24	24
Lighter	2	NA	2	2
Foam pieces	6	NA	6	6
Glass bottles	4	NA	4	4
Metal cans	0	NA	0	0
Metal debris	0	NA	0	0
Fishing buoys	1	NA	1	1
Fishing line	0	NA	0	0
Fishing net	0	NA	0	0
Fishing rope	3	NA	3	3
Fishing lures & hooks	0	NA	0	0
Flip flops	7	NA	7	7
Toothbrush	0	NA	0	0
Fluorescent light bulb	1	NA	1	1
Hard hat	0	NA	0	0
Total	**84**	**NA**	**84**	**84**

Trespass and Game Cameras: I downloaded the game camera that is set up on the west shore of Rose Island. On August 10 at 11:35 am, three men were photographed walking the beach, going north. They noticed the camera and walked up to it but did not disturb it. One was carrying a machete. No vessel was photographed.

On July 27 a large unidentified motor vessel was photographed directly off the channel entrance to the lagoon.

I set up a second game camera on a juvenile Tropicbird that was on a nest near camp on the south side of the island.

Coconut Control: On September 2 we used machetes to control 52 small coconut palms. We drilled 12 holes into one large coconut palm and applied Roundup. All 52 small coconuts were surrounding the large palm. We did not enter the main coconut grove as Sooty Terns were nesting.

The following table shows the number of coconut trees controlled at Rose Island for each visit between October 2015 and September 2016. Small < 10 ft, Medium 10- 25 ft, Large > 25 ft

Month	**Year**	**# of small coconut trees controlled**	**# of medium coconut trees controlled**	**# of large coconut trees controlled**
October	2015	~500	0	0
December	2015	712	7	0
January	2016	0	0	0
March	2016	0	0	0
April	2016	366	0	0
September	2016	52	0	1
Total		**1,630**	**7**	**1**

Trip report by Brian Peck, USFWS Rose Atoll NWR & MNM Manager 1-10-17.

Photos by Brian Peck, except coral photo-quadrant by Alice Lawrence (DMWR-CRAG).