

Distribution of school reconstruction materials following Cyclone Giovanna to local communities working to conserve greater bamboo lemurs in and around the Ankeniheny-Zahamena Corridor, eastern Madagascar

Christelle Chamberlan^{1*}, Lovanirina Ranaivosoa¹, Maholy Ravaloharimanitra^{1*}, H. Lucien Randrianarimanana¹, Hery N. T. Randriahaingo¹, Delphine Rouillet², Tony King¹

¹The Aspinall Foundation, BP 7170 Andravoahangy, Antananarivo 101, Madagascar

²Association Française pour la Sauvegarde du Grand Hapalémur, 24 Rue Archereau, Bâtiment B, Appartement 157, 75019 Paris, France

*Corresponding authors: cchamberlan@gmail.com; rrmahooly@gmail.com

February 2012 will be remembered in Madagascar for the destruction caused by Cyclone Giovanna followed closely by Tropical Storm Irina. During the night of February 13th to 14th, Giovanna, graded 6.5 on the 8 grade-Dvorak scale, hit the east coast near Vatomandry and Brickaville, crossed the country and left by the west coast late morning, causing great damage. The last evaluation of human victims on February 20th was 25 dead, 90 injured, 3 disappeared and 263,190 impacted in other ways, mainly through loss of homes (source: www.sobika.com). On February 26th, the island's east coast was hit by a second storm, Irina, less intense, but still destructive, with a lot of rains which provoked many land slides and cut roads and railways.

The combination of these two natural events was very damaging for the country and, for several months, the humanitarian agencies were concerned about the high risk of famine due to the destruction of rice paddies, fields and fruit trees. This was certainly the case for the sites in and around the Ankeniheny-Zahamena Corridor (CAZ) where The Aspinall Foundation works with local communities to conserve critically endangered greater bamboo lemurs (*Prolemur simus*; King and Chamberlan, 2010; Ravaloharimanitra *et al.*, 2011). Several sites located in the Brickaville District (Bonaventure *et al.*, 2012; Lantovololona *et al.*, 2012; Mihaminekena *et al.*, 2012) felt the full force of Cyclone Giovanna, whilst those in the western part of the CAZ corridor (Olson *et al.*, 2012; Randrianarimanana *et al.*, 2012) were also strongly impacted.

In the Brickaville District many houses and schools were destroyed or damaged, rice fields flooded, litchi and other fruit tree plantations destroyed. The *Prolemur simus* habitats surrounding the Andriantantely lowland rainforest sites were seriously affected, with virtually all trees and bamboos (*Valiha diffusa*) uprooted or broken (H. Randriahaingo, unpubl. data; Fig. 1). The ranging behaviour of the *P. simus* groups was impacted for two weeks, but returned to normal afterwards with the growth of new bamboo shoots. According to our local research assistants, one juvenile *P. simus* was killed by the cyclone at the Lanonana site, and two *P. simus* individuals disappeared at the Ambodimanga site (FKT Ambinanifanasana).

In the western CAZ hundreds of hectares of local rice-fields were flooded for over two weeks, zebu cattle died in the forest, two people died at the village of Ranomainty, many houses were destroyed, schools and bridges damaged. Forest disturbance was most severe in the southern sites of Sakalava and Raboana. In some places an estimated 80% of the bamboo (*Cathariostachys madagascariensis*) and 40% of the trees were uprooted (H. L. Randrianarimanana, unpubl. data; Fig. 2). We found some lemurs (not *P. simus*) dead in the forest following the cyclone, and monitoring of the *P. simus* groups became more difficult due to the damage to the forest and the groups splitting into sub-groups (group fission). After the cyclone, new bamboo shoots sprouted fairly rapidly, attracting an influx of zebu cattle to eat them.



Fig. 1. *Prolemur simus* habitat damaged in February 2012 by Cyclone Giovanna at the Anjinjanaomby site, near Andriantantely forest, Brickaville District. (Photo: Hery Randriahaingo)



Fig. 2. *Prolemur simus* habitat damaged in February 2012 by Cyclone Giovanna at the Sakalava site in the Ankeniheny Zahamena Corridor. (Photo: Lucien Randrianarimanana)



Fig 3. The village of Tanambova, near Andriantantely forest, Brickaville District, following Cyclone Giovanna in February 2012. (Photo: Hery Randriaingano)



Figs. 4 & 5. The public primary schools in the Lanonana (left) and Hananhana (right) villages, near Andriantantely forest, Brickaville District, damaged by Cyclone Giovanna in February 2012. (Photos: Hery Randriaingano (left) and Mandimbisoa Rakotomanga)



Fig. 6. The primary school in the village of Ranomainty, Didy Commune, in Nov 2012, repaired following damage by Cyclone Giovanna. (Photo: Lucien Randrianarimanana)



Fig. 7. Conservation education session led by Lova Ranaivosoa at the public primary school in Ambodimolaina, Brickaville District, following the distribution of the roofing materials, June 2012. (Photo: Hasimija Mihamienekena)

All around the sites, much local infrastructure required complete or partial reconstruction, such as roads, houses and schools (Figs. 3, 4, 5). We found it important to bring assistance to the local populations with whom we collaborate for the conservation of Madagascar's biodiversity. Thanks to funds sent primarily by the "Association Française pour la Sauvegarde du Grand Hapalémur", and also from a private donor in the UK, we purchased 440 corrugated iron sheets to help repair the roofs of 14 primary schools and one secondary school used by communities with whom we collaborate (Tab. I; Fig. 6). All sorts of transport methods were used to distribute the materials to their final destination, many of which are isolated and lacking vehicle access, such as car, train, small tractor, "pousse-pousse", or simply carried by local people.

Usually attracting a large gathering of adults and children at each destination, the distribution of the material was also an opportunity to hold outreach sessions with the local communities, regarding *Prolemur simus*, its conservation, and related Malagasy laws (Fig. 7).

Tab. I. Communities which received corrugated iron sheets for repairing school class rooms. (Note: CEG: Lower secondary school; EEP: Public primary school; FKL: Primary school temporarily funded by parents).

Commune	Town/village	School type	Class rooms	Sheets distributed	Date
<i>Communities concerned with conservation of Ambalafary, Vohiposa and Sahavola sites, Brickaville District</i>					
Anivorano Est	Anivorano Est	CEG	4	10	14/05/2012
	Anivorano Est	EEP	7	10	14/05/2012
	Sandraka	EEP	2	30	06/06/2012
	Ambodimolaina	EEP	5	30	03/06/2012
Fanasana	Fanasana	EEP	3	30	14/05/2012
	Mangabe	EEP	5	60	14/05/2012
<i>Communities concerned with conservation of Andriantantely forest, Brickaville District</i>					
Fanasana Gare	Lanonana	EEP	3	40	14/05/2012
	Hanahana	EEP	3	30	14/05/2012
Lohariandava	Tanambao	FKL	3	30	14/05/2012
Fetraomby	Ambinanifanasana	EEP	3	30	17/06/2012
	Sahavily (FKT Ambinani)	EEP	2	30	17/06/2012
	Ampasimiady (FKT Ambinani)	EEP	2	30	17/06/2012
<i>Communities concerned with conservation within the western portion of the CAZ corridor</i>					
Morarano Gare	Sakalava ambany (FKT Sakalava)	EEP	2	40	13/04/2012
	Raboana (FKT Morarano Gare)	EEP	2	26	27/04/2012
Didy	Ranomainty (FKT Ambohibe)	EEP	1	14	05/06/2012
Total		15 schools	43	440	

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