



IWOKRAMA INTERNATIONAL CENTRE FOR RAIN
FOREST CONSERVATION AND DEVELOPMENT

Monitoring Unit

Annual Monitoring Report – 2009

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1.0 Summary

2009 saw vast improvement in the Monitoring Unit. This was partially the result of the Guiana Shield Initiative Project which assisted by financially sustaining the monitoring activities. This allowed for the acquisition of a boat and engine which facilitated an increase in the number of river patrols from 7 in 2008 to 32 in 2009. Road patrols also increased from 17 in 2008 to 45 in 2009. Monitoring has become more systematic particularly with the revision of the Biophysical Monitoring Framework and Manual. The framework shows why the various forms of monitoring are done while the manual tells us how to do it. This also allowed for data collected on wildlife to be standardised. Selected species were identified to be observed throughout the road corridor and along transects on the road.

The road corridor experienced the seasonal deterioration with the wet season midyear, however, resurfacing was done in the latter part of the year. The bridges and culverts within the reserve were maintained when necessary. There is a noticeable increase in the number of vehicles entering the reserve through the Kurupukari barrier from Georgetown (Ranger Station 1 at the Northern boundary) from May to December. There were fluctuations in the numbers entering from the Corkwood barrier (Ranger Station 2 at the Southern boundary), however, this increased to more than those entering through the Kurupukari barrier by the end of the year. The annual Easter weekend Rodeo in Lethem allowed for a drastic increase in the number of vehicles entering the Reserve in April.

Weather data collection recommenced following rectification of the thermohygrometer used to read the temperature and humidity. This was done throughout the year with some inconsistencies with data being recorded at Kurupukari (Iwokrama River Lodge, IRL). Water quality testing was re-initiated following the acquisition of a YSI multi-probe which reads temperature, dissolved oxygen, electrical conductivity, and pH. There was a gap in the data collection from August to October due to unavailability of a battery pack from the manufacturer.

Solid waste management continued at IRL, the ranger stations and along the road corridor. Plastic continued to be the major contributor of litter collected along the road corridor. November showed the highest number of pieces collected followed by December with September having the least. The forest impact monitoring pre-harvest survey was completed on five management units during the year starting in February and ending in December.

2.0 Road Monitoring

A total of 45 road patrols were done in 2009 an increase from 17 done in 2008. Road patrols were also systemised with the revision of the Biophysical Monitoring Framework and Manual.

2.1 Road Surface

- The road surface remained in good condition for the first quarter of 2009 following resurfacing in December 2008
- By the second quarter small potholes developed throughout the length of the road corridor
- Resurfacing of the road began in the third quarter and continued into the fourth quarter
- By December small potholes could be found throughout the length of the road

2.2 Bridges

- On 4th January there was an accident at the Kuipari Bridge. The side bars of the bridge were damaged and was repaired by the 7th January
- The Kuipari Bridge required repair several times within the year
- Bridge approaches began to deteriorate in the first quarter and worsened through the third quarter. These were repaired in the fourth quarter of the year

2.3 Culverts

- Culverts could not be observed during patrols in the first quarter due to heavy vegetation
- Clearing of vegetation around the culverts commenced in the second quarter
- Observations of culverts were done in the fourth quarter during a motorcycle patrol

2.4 Creeks

- There were few instances where solid waste was found within creeks
- There was a noticeable decrease of the water level from the second quarter through October
- There was also heavy vegetation in some creeks for some periods of the year

2.5 Traffic Summary

Traffic data is recorded by Check Point Monitors stationed at the two Ranger Stations located at Kurupukari and Corkwood. The data recorded includes type and number of vehicle both entering and exiting the reserve.

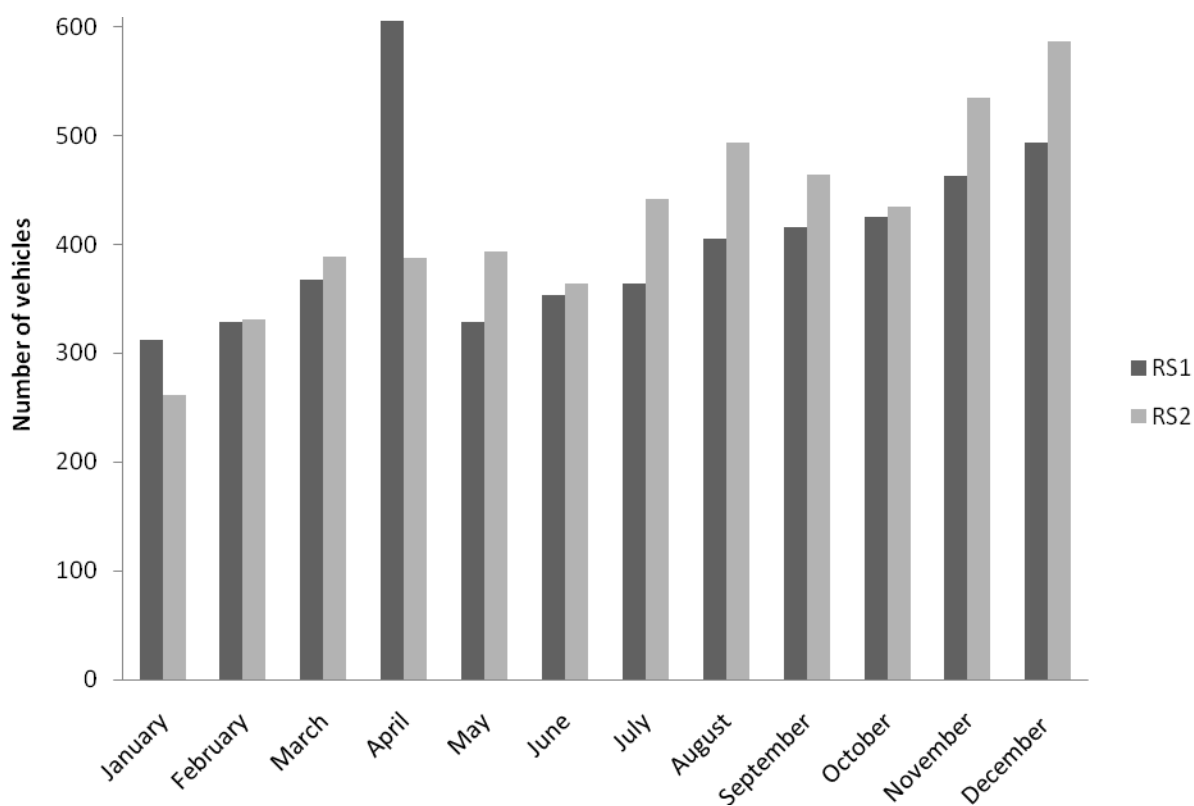


Fig.2.5.1: Number of vehicles entering the Reserve through the Northern boundary (Kurupukari Ranger Station, RS1) and the Southern boundary (Corkwood Ranger Station, RS2) for 2009

- Data collected from April (RS1) and May (RS2) was separated into vehicles entering and exiting the reserve. To facilitate this the data collected from January to March (RS1) and April (RS2) was divided in half to give a representation of data collected
- The annually increase of traffic during the Easter weekend rodeo (2nd – 5th April) in Lethem was again experienced, however, this year the number of vehicles entering the reserve through the Northern boundary was not reciprocated by the number entering from the Southern boundary
- There is a steady increase in the number of vehicles entering through the Northern boundary from May to December but a fluctuation in the number entering from the Southern boundary
- The Takutu Bridge was officially opened on the 14th September 2009, this may have contributed to the fluctuation of numbers
- It should also be noted vehicles entering the reserve also include vehicles from the River Lodge as well as community members entering the reserve for hunting/ fishing activities

3.0 River Monitoring

A total 32 river patrols were completed for 2009 with an average of 8 per quarter in comparison to a the total of 7 that were done in 2008. This was also a direct result of the revision of the monitoring framework and manual and the acquisition of a designated monitoring boat in the last quarter of 2008.

3.1 Human Presence and Illegal Activities

- First quarter
 - Two fishermen were observed in the Siparuni River
 - Three boats headed towards Ireng Creek
 - One new fish camp was observed on the Eastern bank of the Siparuni
- Second quarter
 - Five boats and three camp sites in total were observed in both the Essequibo and Siparuni Rivers all with local fishermen
- Third quarter
 - Eight boats total were observed in the Essequibo and Siparuni Rivers
 - One boat was observed headed upstream of the Burro Burro River
- Fourth quarter
 - Four fishermen boats were observed
 - Two boats were observed in the Burro Burro River on the 3rd October
 - Litter and evidence of a fresh fire were observed at the White Water Camp in the Burro Burro River on the 7th December

3.2 Other Activities Accomplished

- Wildlife transects were established for river patrols
- The White Water Camp was renovated
- The Guyana Hydrometeorological Office expressed an interest to set up two water level readers one in the Siparuni River and the Burro Burro River. Construction of these are planned for the following year

4.0 Weather Monitoring

4.1 Kurupukari and Corkwood

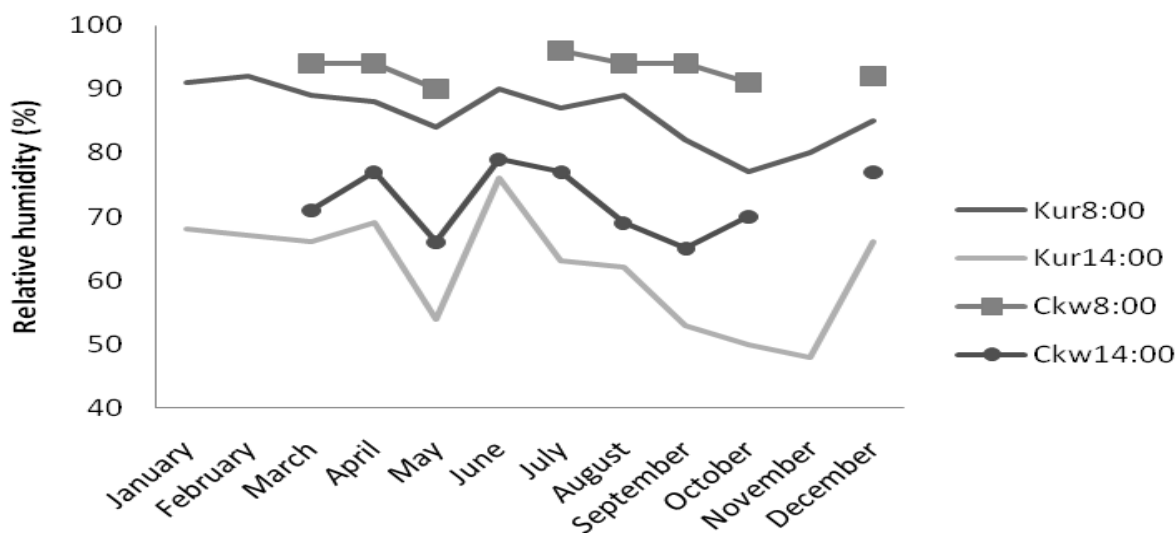


Fig.4.1.1: Relative humidity at Kurupukari and Corkwood at 08:00hrs and 14:00hrs for 2009

Note: data missing for Corkwood for January, March, June and November

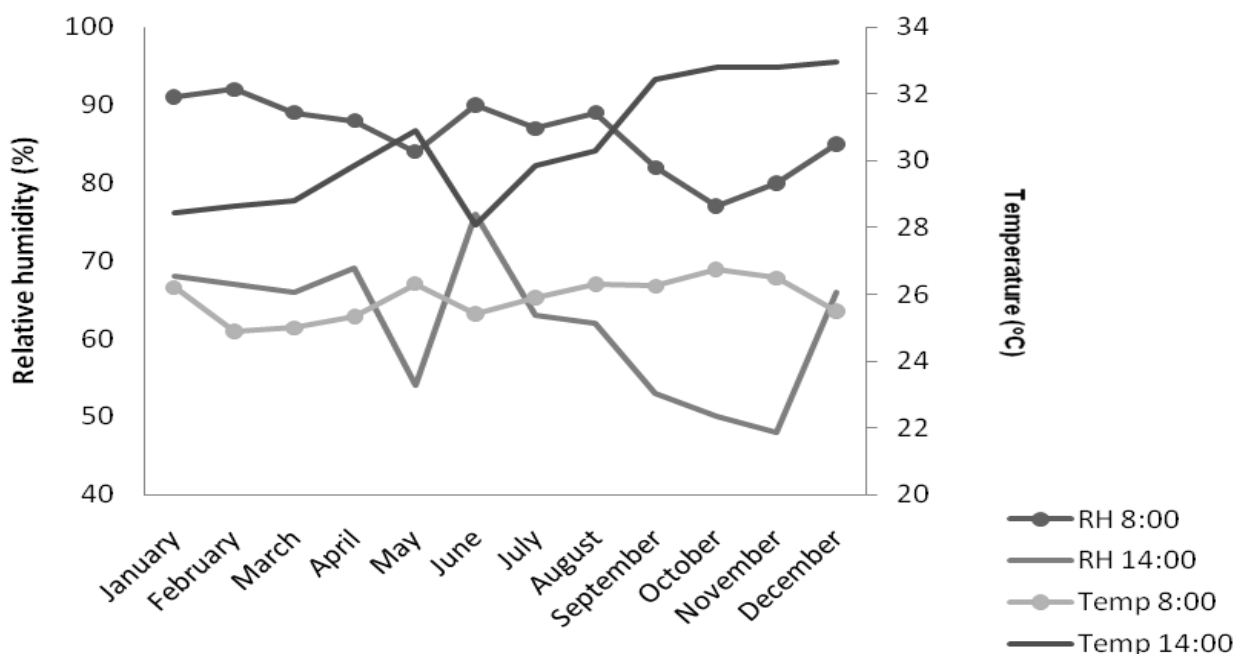


Fig.4.1.2: The relationship between relative humidity (RH) and Temperature at Kurupukari for 2009

- Weather data was collected all year at Kurupukari and from March at Corkwood. The datasheet for November for Corkwood was misplaced
- Water level data was not recorded for the year 2009 as the water level was below the lowest mark on the marker in the dry season
- Figure 5.1.1 indicates that Corkwood generally has a higher relative humidity throughout the year in comparison to Kurupukari
- Figure 5.1.2 illustrates the correlation between relative humidity and temperature, as temperature increases humidity decreases and vice versa
- Humidity is generally higher early in the morning, later afternoon and during rain spells
- Rainfall data was also collected throughout the year at both Kurupukari and Corkwood, however, the incorrect measuring cylinder was used from January – May at Kurupukari and January – July at Corkwood. Upon observation of this the correct cylinders were sought from the Guyana Hydrometeorological Office and implemented in June and August respectively

5.0 Wildlife Monitoring

During the first quarter of 2009 monitoring activities were systemised allowing for a standard format for patrols including when, where and what data would be collected. Tables 6.1 and 6.2 show the selected species to be observed during road and river patrols. The sighting rate is calculated by dividing the number of observed species by the total distance travelled for the required time period.

5.1 Road Patrols

- A total of 45 road patrols were done for the year covering a distance of 3240 km

Table 5.1.1 Select species observed during road patrols along the length of the road corridor

Species name	Number observed	Sighting rate
Grey-winged trumpeter	1	0.0003
Black Currosow (Powis)	92	0.0284
Jaguar	4	0.0012
Puma	0	0
Red-rumped agouti	40	0.0124
Tapir	1	0.0003
Red-brocket deer	0	0
Grey-brocket deer	1	0.0003
Giant Anteater	1	0.0003
Yellow-footed tortoise	0	0
Anaconda	2	0.0006

5.2 River Patrol

- Wildlife data was collected during 27 patrol, 9 upstream and 18 downstream
- Data collection commenced in March 2009

Table 5.2.1 Selected species observed along transects on the Essquibo, Siparuni and Burro Burro Rivers

Species name	Upstream	Downstream
Amazon kingfisher	9	22
American pygmy kingfisher	0	1
Anhinga	27	9
Black Skimmer	0	8
Buff-necked ibis	0	0
Cocoi Heron	29	17
Great egret	8	7
Green & rufous kingfisher	5	9
Green ibis	5	12
Large-billed tern	9	4
Little blue heron	1	3
Muscovy duck	25	11
Neotropic cormorant	34	8
Osprey	3	3
Pygmy kingfisher	1	1
Ringed kingfisher	13	14
Rufescent tiger-heron	2	0
Tri-coloured heron	2	0
White-banded swallow	14	23
White-winged swallow	79	252

5.3 Opportunistic Sightings

- These are sightings of wildlife within the Iwokrama Forest by tourists, rangers, tour guides and any other visitor or staff

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total
Agouti							1						1
Albino humming bird										1			1
Arapaima							1						1
Black spider monkey					8			1		1	1	1	12
Brown Capuchin monkey	5							2				1	8
Brown saki monkey										1			1
Capuchin bird												2	2
Capybara			7										7
Coati										4			4
Cock-of-the-rock									1				1
Emerald boa			1										1
Giant river otter		1	7	2	6		1	3	2	1	4		27
Harpy eagle		1		1									2
Jaguarundi	1									1			2
Jaguar	6	2	6	2	1	2	6		4		2	2	33
Margay								1					1
Ocelot		2							1				3
Orange-breasted falcon			1										1
Puma	2	1	3	1			1				2	1	11
Red howler monkey	3										1		4
Red-brocket deer	1						2				2		5
Squirrel					1								1
Tapir					2	2					1		5
Toe-toed sloth						1							1
Tyra			1		2					2			5
Total	18	7	26	6	20	5	12	7	8	11	13	7	140

5.4 Forest Impact Monitoring

- Forest impact monitoring is a survey done prior to and after a selected management unit is harvested to evaluate the impacts on under storey bats and birds and primates
- Five management units were surveyed during 2009; February – E6, March – K39, November – E4 and K40 and December – K43
- The data collected was entered into a database and will be analysed after the post harvest surveys are complete

- A control site was planned for the January 2010

6.0 Solid Waste Management

6.1 Road Corridor

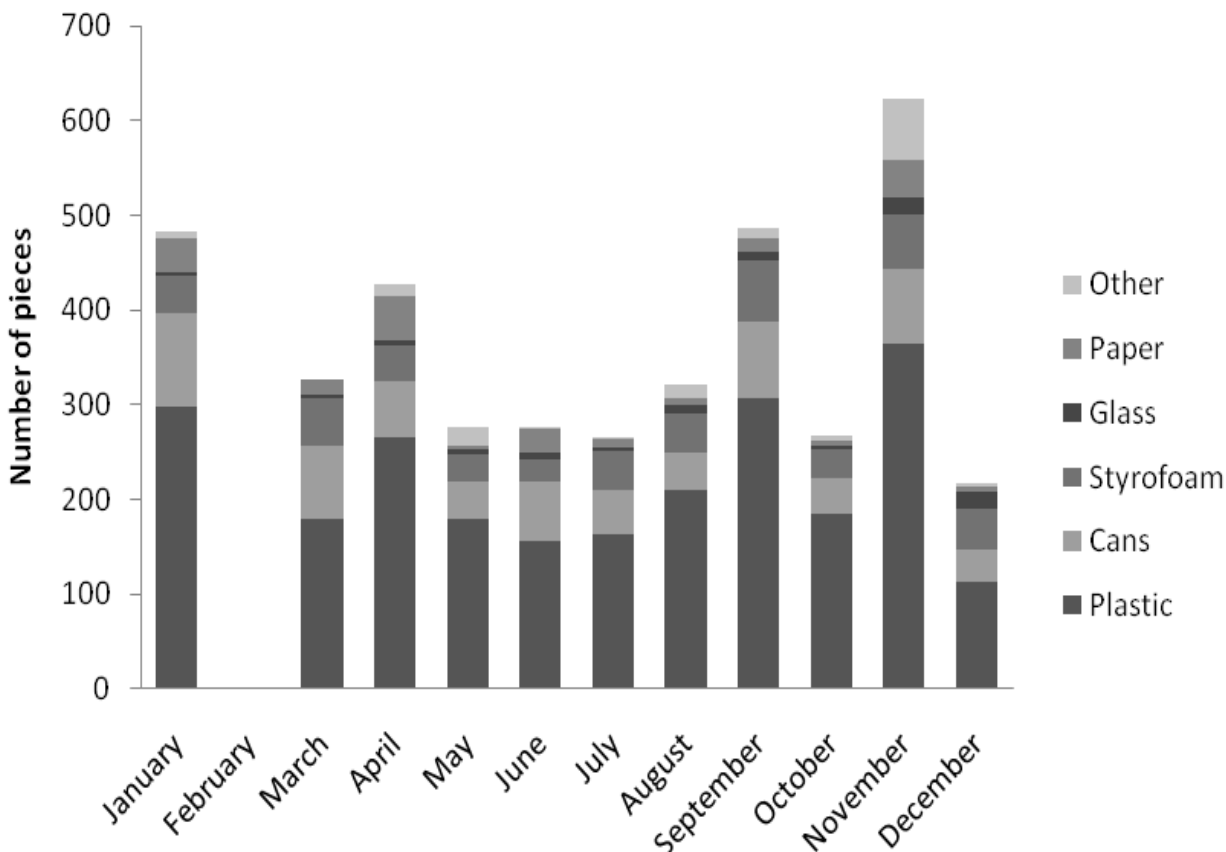


Fig.6.1.1: Number of pieces of litter, according to type, collected for the year 2009

- No litter collection was done for February
- Approximately 235kg of litter was collected for the year with plastics contributing 113kg
- November had the largest number of pieces collected with 623 weighing approximately 40kg

6.2 Waterways (Rivers and Creeks)

- There was little to no presence of garbage along the waterways bordering or within the reserve

6.3 Field Station

- In January separation of solid waste generated at the River Lodge was initiated, however, this was discontinued due to lack of better ways to dispose the separated waste
- By the end of the year waste was simply being buried
- Solid waste generated at the River Lodge was not weighed
- The purchase of glass bottled drinks continued in an effort to reduce the plastic waste generated

6.4 Ranger Stations

- Solid waste generated at the range stations is buried in garbage pits which were maintained during 2009
- Solid waste at the stations are not separated or weighed

7.0 Water Quality Monitoring

- A YSI multi-probe was acquired in March 2009. The probe reads Temperature, Dissolved oxygen, Electrical conductivity, and pH
- A turbidity was also measured using a Seechi disk in meters
- There was a gap in data collection for August – October due to the unavailability of the rechargeable battery pack from the manufacturer

8.0 Other

8.1 Airstrip Monitoring

- Airstrip maintenance and monitoring continues to be done by the Fairview Village. The airstrip has been kept clear of heavy vegetation and was used throughout the year

9.0 Follow up on recommendations from 2008 report

- Road Monitoring
 - Traffic data is separated into vehicles entering and exiting at both the Kurupukari and Corkwood barriers
- River Monitoring
 - Transects were established along the rivers
- Airstrip Monitoring
 - Copies of the airstrip monitoring data sheets are kept at the River Lodge
- Weather Monitoring
 - The water level pole was fixed but the correct measurement with respect to sea level was not done
- Wildlife Monitoring
 - Data recorded includes the number of individuals/ groups observed

10.0 Recommendations 2009

- Road Monitoring
 - There should be a dedicated vehicle for monitoring activities as these are likely to increase as efforts are made to further enhance the monitoring of the Iwokrama forest
- River Monitoring
 - There should be an increase in the number of river patrols with increased activities downstream of the River Lodge
- Weather Monitoring

- Inconsistencies in weather data collection at the River Lodge will be significantly improved with the installation of climate and hydrology monitoring system in 2010. This is being done in collaboration with Newcastle University.

11.0 Conclusion

There has been a notable increase in the number and consistency of patrols. This allows for more accurate data to be collected and therefore better analysis can be done. There were some inconsistencies, however, with time this will be eradicated as monitoring procedures become more regular.