

**WCS-Congo Ebola coordination meeting  
Brazzaville  
14<sup>th</sup> April, 2007**

**Participants**

Dave Morgan  
Trish Reed  
Ken Cameron  
Emma Stokes  
Zorine Nkouantsi  
Alain Ondzie  
Bryan Curran  
Richard Malonga

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**A. Overview of what has been done - Gap analysis USFWS grant**

**Results to date:**

**1. Rapid response to carcasses (Alain)**

(Since May/June 2005 Ebola outbreak)

November 2006 – 1 chimpanzee carcass (Ebola negative)

January 2007 – 5 gorilla carcasses (not yet tested – bones from 4 carcasses were sent to CIRMF)

February 2007 – 1 gorilla carcass (Ebola negative)

All of these carcasses (with exception of chimpanzee) were reported by the local community. The chimpanzee carcass was found by the WCS monitoring teams.

***Recommendations for follow-up***

Improve carcass and sample record-keeping (assess time and response rate)

Export permits (increase communication rate from carcass)

Open CITES export permit from DG

Increase response time for Ebola diagnostic from CIRMF

RKI (avoid duplication of effort – samples to be sent by WCS FVP NOT CIRMF)

What happened to the RKI samples if an Ebola diagnostic was negative?

RKI will take bones if that is all we have – Trish to follow up

Improve communication of carcasses by local population to field vets (outreach see below).

## **2. Epidemiological surveillance (Trish/Alain)**

### *Fecal screening*

16 fecal samples from May 2005 epidemic sent to Nancy Sullivan – cold chain needs to be respected

No feces yet collected for the GAP analysis (2006-2007)

Equipment for facilitating cold chain purchased

Parfait collected 10 fecal samples during the Jan/Feb mission (conserved in RNA later). Transported to Brazzaville. Lack of cold chain (not sent).

### *Carcass surveillance*

Two intensive carcass surveillance missions to outbreak sites (Jan-Mar 2007).

Zig-zag search pattern with a base-camp proved to be the most productive means of finding carcasses.

Communication coordination with sat phones worked well and all signs of live and dead apes were noted.

Results mapped in relation to previous epidemics

Jan – Feb 2007 (1 carcass – skull, 1 carcass – hair: still in Brazza)

Feb – Mar 2007 (1 carcass – bones: still in Brazza)

### *Recommendations for follow-up*

Nancy Sullivan - would now like samples from Odzala (previous outbreaks) AND current outbreak zones for Ebola antibody assays

Cold chain needs to be completed

Need to get update on what equipment is where for cold chain (NY vs Congo vs Gabon)

Need to improve all the response times from carcass to diagnostic.

## **3. Ape bio monitoring (Richard)**

10 transects remaining in Pikounda and 1 in Ngombe at present time

1 transect remaining in Ntokou (needs to be displaced due to high water)

Spatial map of nest encounter rate per transect presented for data already entered

Some data still to enter and clean for Ntokou / Ngombe

### *Recommendations for follow-up*

Time-table for continuing field work and analysis (1 month)

Send outstanding field-data books to NNNP for data entry

Speak to IFO (Tom van Loon) about obtaining 2001-3 inventory data for comparison and assessment of Ebola impact

## **4. Animal mortality monitoring (camera traps) + Bait trials (camera traps) (David)**

7 cameras that FVP purchased are all up and running

7 night-lights that will be tested in the coming months

Cameras currently set up at phenology trees (video analysis to score inspection/ingestion ongoing)

Some fruit species assessed – more to follow (esp. Chrysophyllum)

Carcass monitoring (chimp/duiker carcasses) – will be tested with night-lights in coming months

***Recommendations for follow-up***

Annonidium is potential candidate for baiting (not highly visited by elephants but visited regularly by gorillas/chimpanzees)  
Chrysophyllum possible (waiting on data)  
Klainodoxia also possible (long duration)  
Fruit characteristics important – manufactured bait more likely to succeed but baiting location can be focused through the natural bait trials (drawing apes into baits)  
Manufactured food dispenser would have to be raised up off the ground (avoid pigs)  
Apes are becoming habituated to the cameras – providing more accurate picture of visitation and uptake rates

**Testing river barriers**

Odzala river barrier test – inconclusive on effect of river barrier (host-host transmission or reservoir-host transmission)

***Recommendations for follow-up***

Assess Ngombe data  
Follow-up on southern Odzala surveys (look at role of river barriers in host-host and reservoir-host transmission).

**Community outreach**

Eric Kinzonzhi (INCEF) – doing Ebola sensibilisation along the Ouessou-Yengo road

Eric is also specifically talking to hunters about the importance of reporting carcasses (for WCS-FVP)

[**Richard** – since outreach campaign at beginning of October by WCS-TRIDOM (Gervais) along the Mambili road – the number of great ape carcasses sold at market has decreased. There appears to be a fear in local community/reduction in great ape poaching in the region].

***Recommendations for follow-up***

Need to get dedicated person permanently based in Ouessou to do health/education (possibly INCEF?).  
Links into finding carcasses quickly (early warning system and community awareness)  
Ensure that sensibilisation message is being monitored by WCS-FVP

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**B. Discussion points**

***Vaccine***

*Paris meeting (Trish)*

**1. Adenovirus (non-replicating) – injectable (Nancy Sullivan NIH)**

(Logistical difficulties of administering injectable vaccine via biobullet/dart: complicated by actual administration and issues of injecting into muscle/nerve/injury with ballistic gun, need to be < 30m for biobullet, perhaps less danger with dart; booster needed, unless slow-release biobullet works). For further testing of the biobullet option, one would need to actually try it on great apes – would probably need to be captive, so they could be monitored or anesthetized and examined to determine what kind of damage the biobullet does to tissue, etc. Going to be logistically challenging.

## **2. VSV (replicating – but non-recombinant) – oral bai (Heinz Feldman/Canada – Joeseeph Fair + Tom Geisbert/USAMRID)**

**Has worked well with macaques in a lab setting (against Ebola and with SIV infection). Much more likely candidate for future testing and application for apes.**

### *Vaccine testing – field research priorities*

1. Incorporating other sites to look at specific preferences / food targeting (replication of Dave and Crickette's study). Lope?
2. Novel foods/food preferences
3. Identify non-target species
4. Serology screens of wild apes for VSV (sanctuary animals have been exposed to too many human pathogens)
5. Fecal screens for VSV and/or Ebola (pre-existing immunology and potential screening method for post-vaccination of wild populations)

### *Extension for the current USFWS GAP analysis grant*

Workshop to analyse and disseminate the Ngombe survey results

\* Fecal samples – Nancy Sullivan screens/cold chain

Extra fruit follows

### ***New USFWS proposal***

#### **1. Bait trials**

Novel foods (monkey chow – manufacturers?)

Food dispensers (manufacturers? – perhaps used with natural foods)

Another site????? Lope/Moukoulaba-Doudou/Lac Tele

**Serology screens (where – who would do it) – diet can affect fecal analysis of VSV so serosurveillance would be important confirmatory step) – perhaps not**

USFWS funding

Fecal screens (where? Southern Odzala, Ngombe for Ebola antibodies) VSV in Goulougo and Mondika – COLD CHAINS NEED TO BE ESTABLISHED

#### **2. Continuation of remote camera monitoring for fruit follows (new species) and carcasses**

3. Surveys in southern Odzala (and surrounding areas.....check with Richard) – accompanied by intensive surveillance in predicted current ape hotspots (possibly southern Odzala and Ngombe)

4. Rapid response and surveillance (if outbreak) – improve sample response rates and improve rate of finding carcasses by local community (links into a full-time outreach person permanently based in Ouesso)

5. Education and outreach (see INCEF – dedicated person on this)
6. Another vet salary to focus on grant activities (implementation of grant).

Two separate grants?:

Vaccines etc: Ken

Surveys: Richard

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### **Other issues**

**Lab space** in Brazzaville office – trying to establish joint zoonotic disease lab with NPHL, but bureaucratically slow. Bryan wants to reopen discussion of small lab space in magasin of office in BZV. Ken to provide him with details.

**Congo Ebola Strategy** (Ouessou authorities) – recent meeting organized by the Ministry of Public Health and announcement by DDEF.

**Peter Walsh:** Extent of collaboration to be limited to Cameroon only. Lack of funding and overlap with existing WCS Congo/WCS FVP activities.

### **Collaring bats:**

CIRMF – one time capture not useful due to seasonal/spatial variables.

Weight of telemetry units is major problem

**- Winnipeg document (summary document for circulation)**

**- Early-warning system and rapid response protocol for Ebola – WCS FVP (document for circulation)**