

# Long Term Wildlife and Human Disease Surveillance in Northern Congo

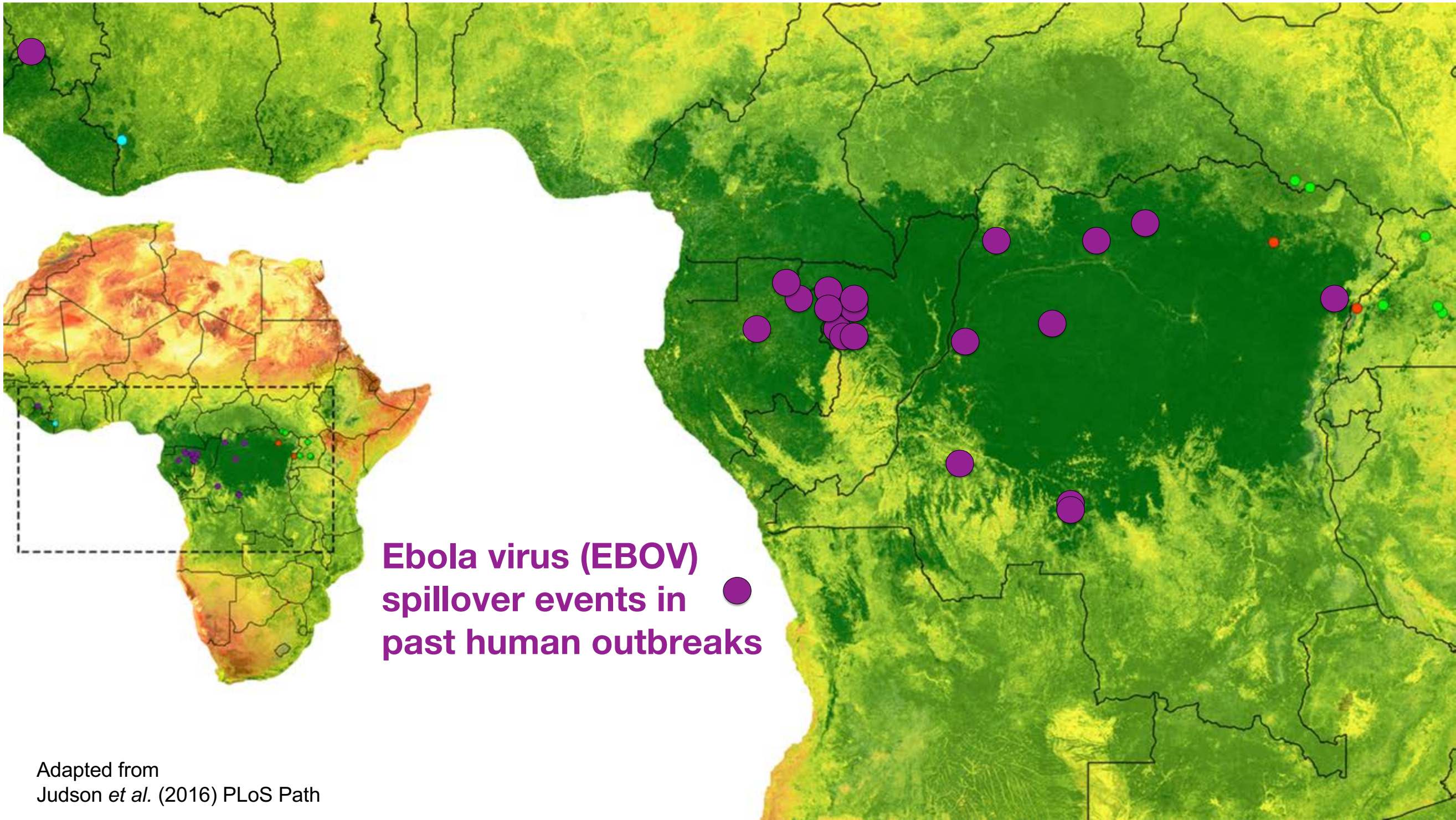
## Model for Detection of Ebola Virus Disease Epizootics

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Wildlife Conservation Society

Wildlife Health Programme  
Congo Brazzaville





Adapted from  
Judson *et al.* (2016) PLoS Path



## Republic of Congo and Gabon Outbreaks 2001-2005

A limited outbreak of Ebola haemorrhagic fever in Etoumbi, Republic of Congo, 2005

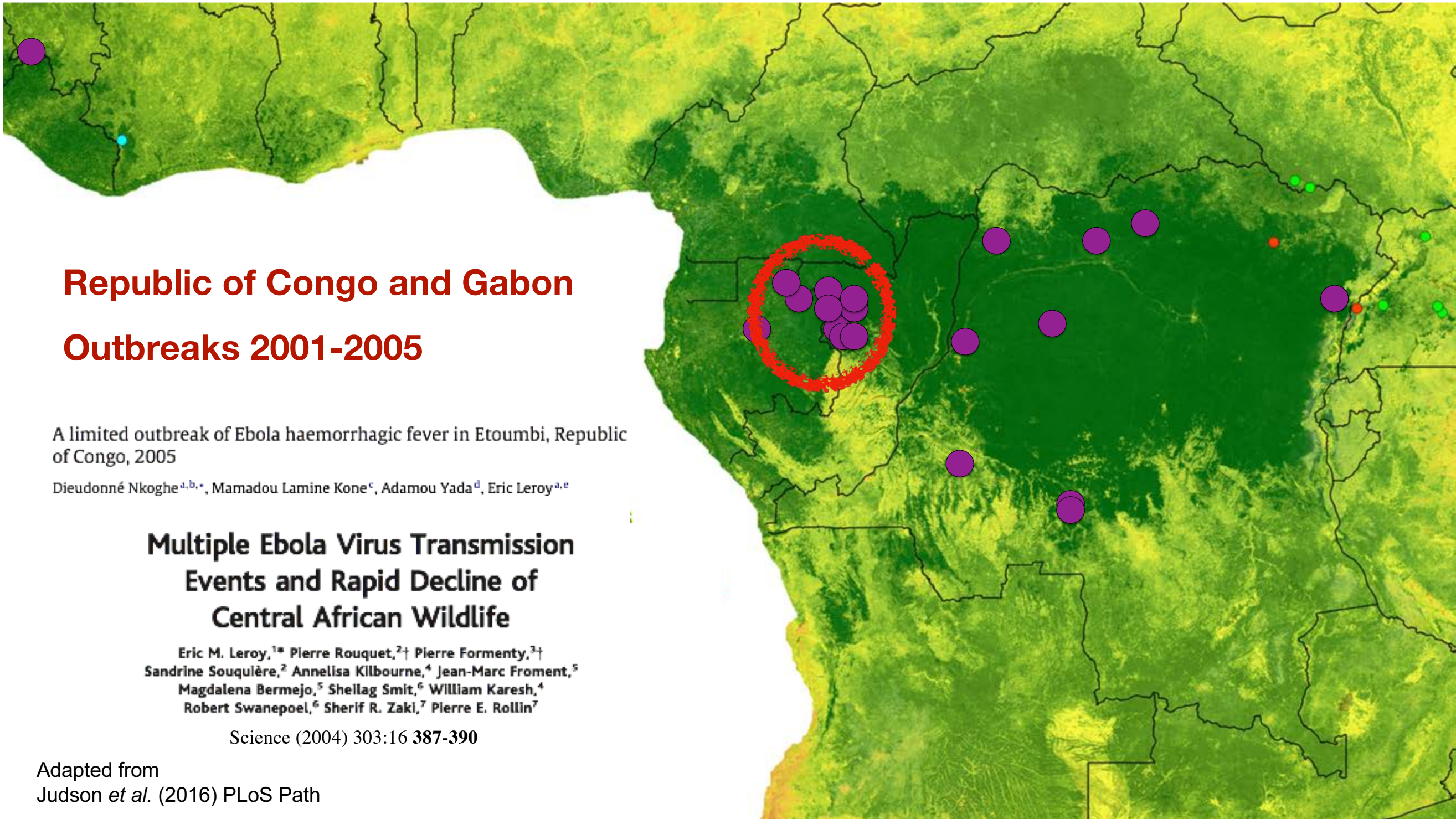
Dieudonné Nkoghe<sup>a,b,\*</sup>, Mamadou Lamine Kone<sup>c</sup>, Adamou Yada<sup>d</sup>, Eric Leroy<sup>a,e</sup>

### Multiple Ebola Virus Transmission Events and Rapid Decline of Central African Wildlife

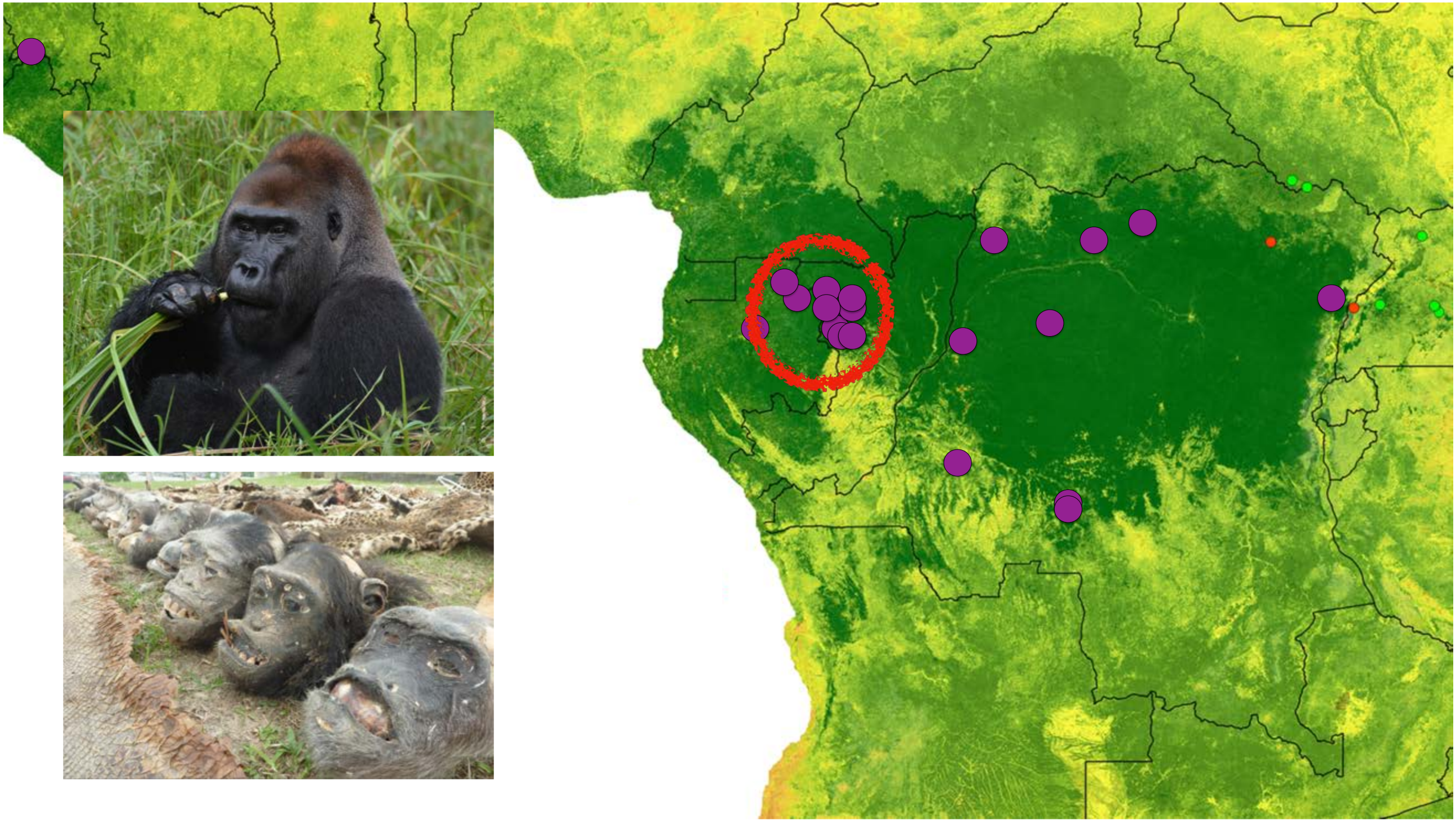
Eric M. Leroy,<sup>1\*</sup> Pierre Rouquet,<sup>2†</sup> Pierre Formenty,<sup>3†</sup>  
Sandrine Souquière,<sup>2</sup> Annelisa Kilbourne,<sup>4</sup> Jean-Marc Froment,<sup>5</sup>  
Magdalena Bermejo,<sup>5</sup> Shellag Smit,<sup>6</sup> William Karesh,<sup>4</sup>  
Robert Swanepoel,<sup>6</sup> Sherif R. Zaki,<sup>7</sup> Pierre E. Rollin<sup>7</sup>

Science (2004) 303:16 387-390

Adapted from  
Judson *et al.* (2016) PLoS Path









# Ebola Outbreak Killed 5000 Gorillas



Magdalena Bermejo,<sup>1,2\*</sup> José Domingo Rodríguez-Teijeiro,<sup>2</sup> Germán Illera,<sup>1</sup>  
Alex Barroso,<sup>2</sup> Carles Vilà,<sup>3</sup> Peter D. Walsh<sup>4</sup>

Morbidity and mortality of wild animals in relation  
to outbreaks of Ebola haemorrhagic fever  
in Gabon, 1994–2003

Sally A. Lahm<sup>a,\*</sup>, Maryvonne Kombila<sup>b</sup>,  
Robert Swanepoel<sup>c</sup>, Richard F.W. Barnes<sup>d,e</sup>

ECOLOGY

SCIENCE VOL 314 8 DECEMBER 2006

## Tracking Ebola's Deadly March Among Wild Apes

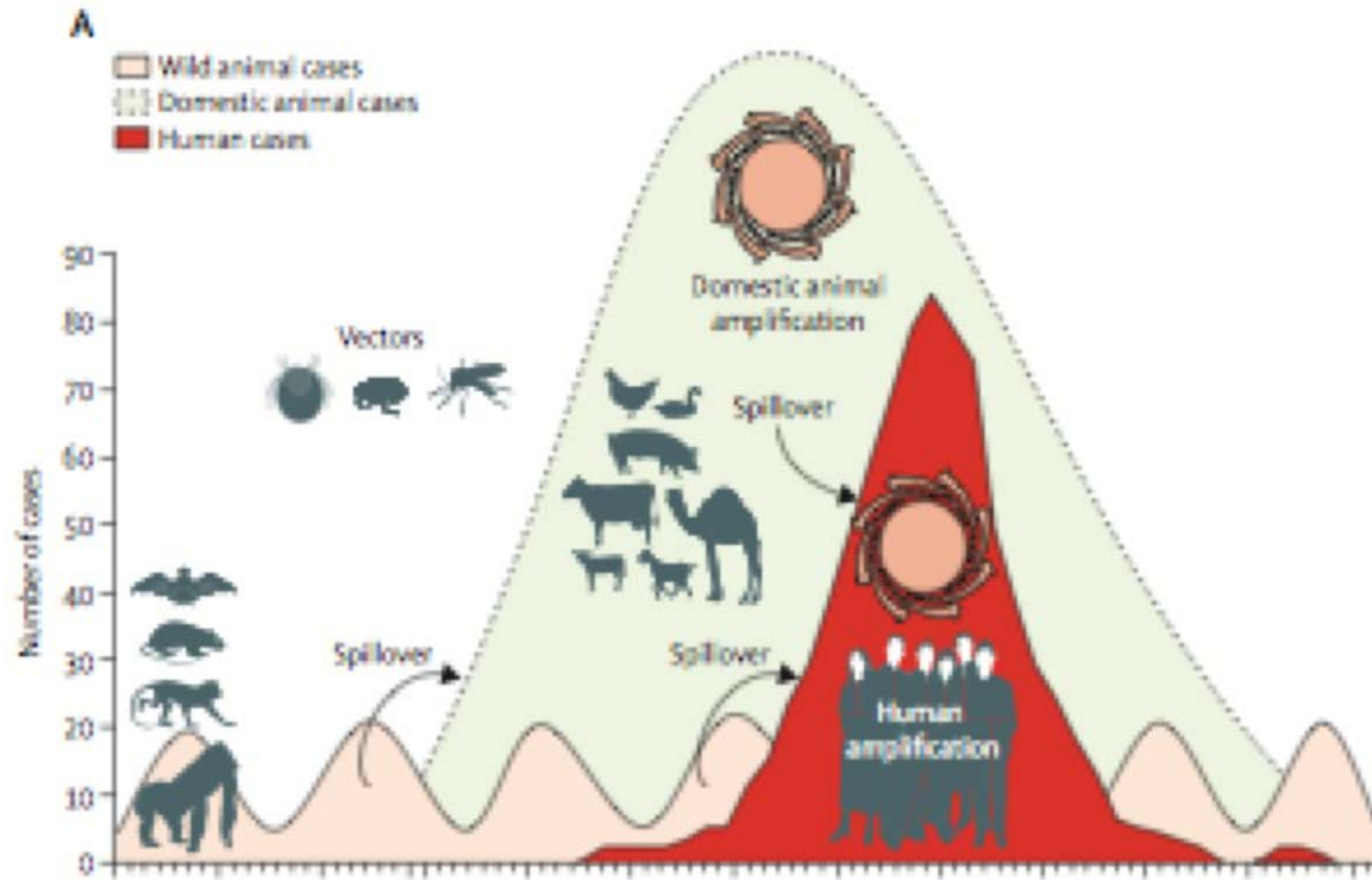
—GRETCHEN VOGEL

## Catastrophic ape decline in western equatorial Africa

Peter D. Walsh<sup>\*</sup>, Kate A. Abernethy<sup>†‡</sup>, Magdalena Bermejo<sup>§</sup>,  
Rene Beyers<sup>||</sup>, Pauwel De Wachter<sup>¶</sup>, Marc Ella Akou<sup>¶</sup>, Bas Huijbregts<sup>¶</sup>,  
Daniel Idiata Mambounga<sup>#</sup>, Andre Kamdem Toham<sup>¶</sup>,  
Annelisa M. Kilbourn<sup>||</sup>, Sally A. Lahm<sup>☆</sup>, Stefanie Latour<sup>||</sup>,  
Fiona Maisels<sup>||\*\*</sup>, Christian Mbina<sup>||</sup>, Yves Mihindou<sup>||</sup>, Sosthène Ndong  
Obiang<sup>#</sup>, Ernestine Ntsame Effa<sup>#</sup>, Malcolm P. Starkey<sup>||††</sup>,  
Paul Telfer<sup>†‡‡</sup>, Marc Thibault<sup>¶</sup>, Caroline E. G. Tutin<sup>†‡</sup>, Lee J. T. White<sup>||</sup>  
& David S. Wilkie<sup>||</sup>



# Ebola surveillance for the protection of wildlife and humans













## ATTENTION EBOLA !



- On n'attrape pas la Fièvre Ebola par sorcellerie.
- La Fièvre Ebola est une maladie mortelle !
- La Fièvre Ebola tue les humains et certains animaux.
- On attrape le virus après contact avec un animal malade de Fièvre Ebola.
- Ne touchez pas les animaux trouvés morts en forêt, on ne sait jamais.
- Si vous trouvez un ou plusieurs animaux morts en forêt, contactez tout de suite les autorités locales.



MINISTRE DE LA SANTE,  
DES AFFAIRES SOCIALES  
ET DE LA FAMILLE



## KEBA NA EBOLA !



- Bokono ya ebola ezali ki ndoki te.
- Ezali Bokono oyo ebomaka ba niama ya zamba pe bato.
- Bokono yango ezali ko zuama na tango oyo ozali kosimba niama oyo akufi na ebola.
- Epekisami na yo ko simba niama oyo basili ko kufa na zamba.
- Soki bo kuti niama moko to ebele ba kufi na zamba esengueli bo yebisa noki na ba nkambi ya mboka.



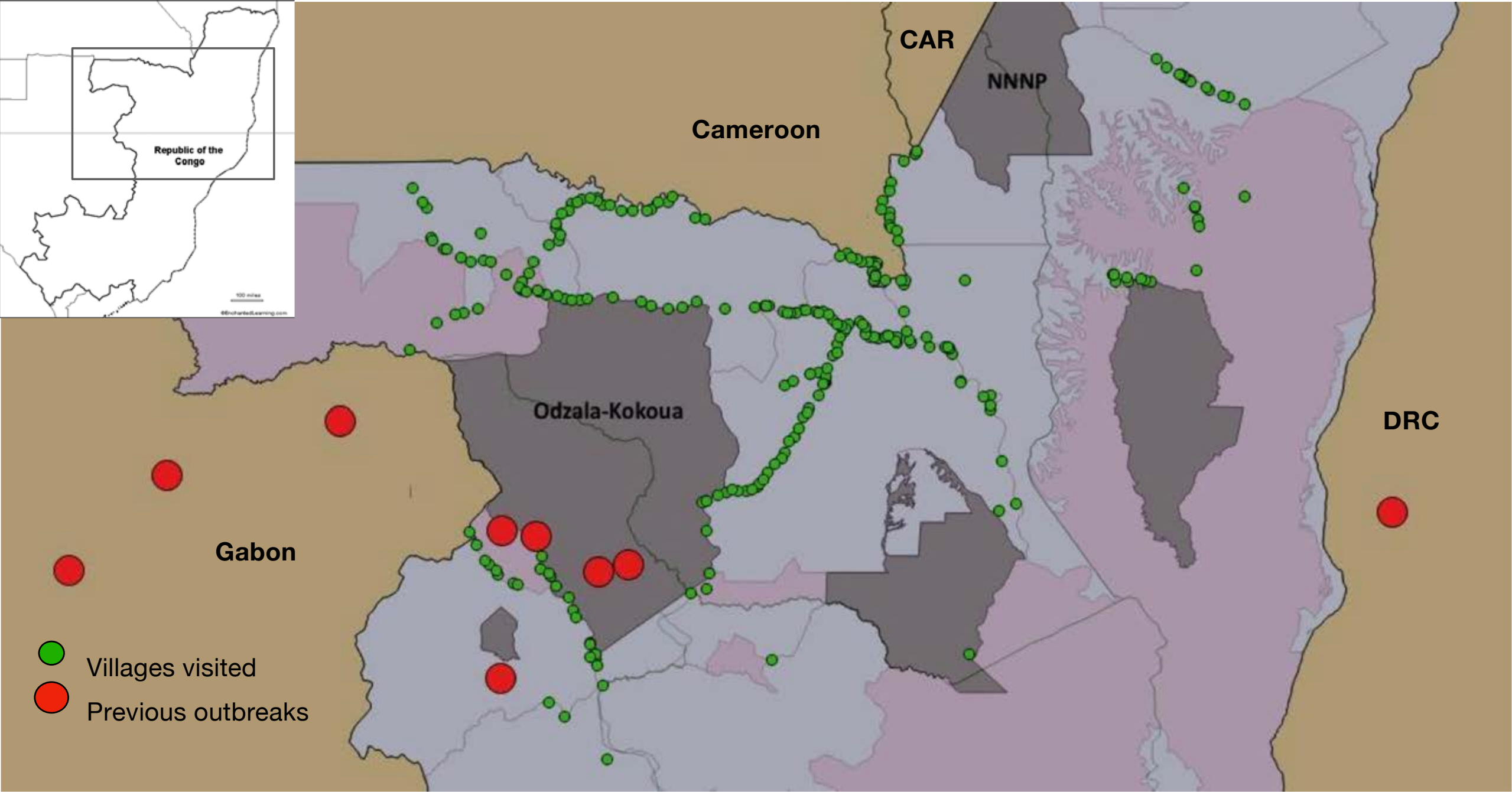
MINISTRE DE LA SANTE,  
DES AFFAIRES SOCIALES  
ET DE LA FAMILLE



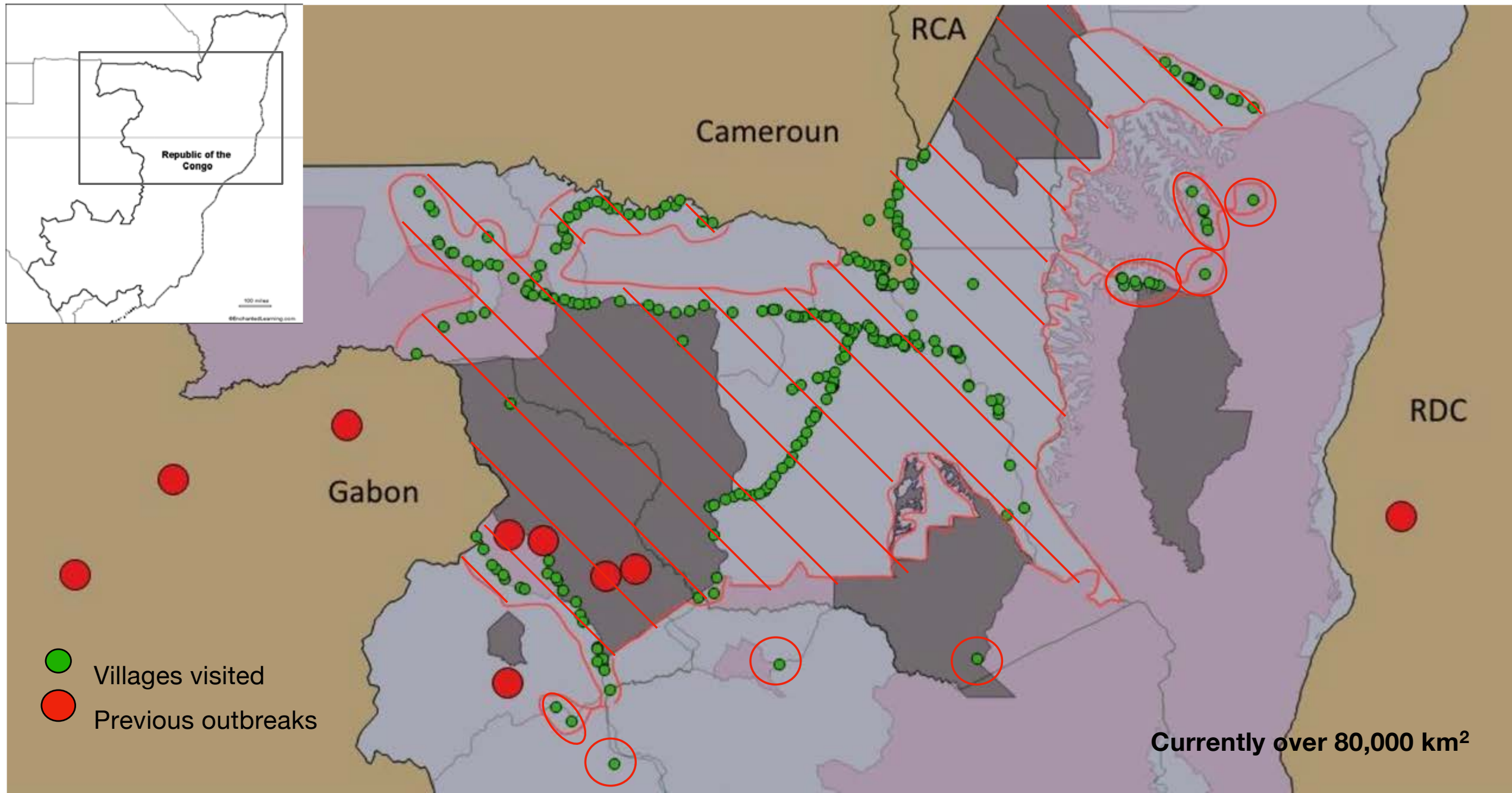














# Safe and rapid response to carcass reports in remote locations



ROCKY  
MOUNTAIN  
LABORATORIES

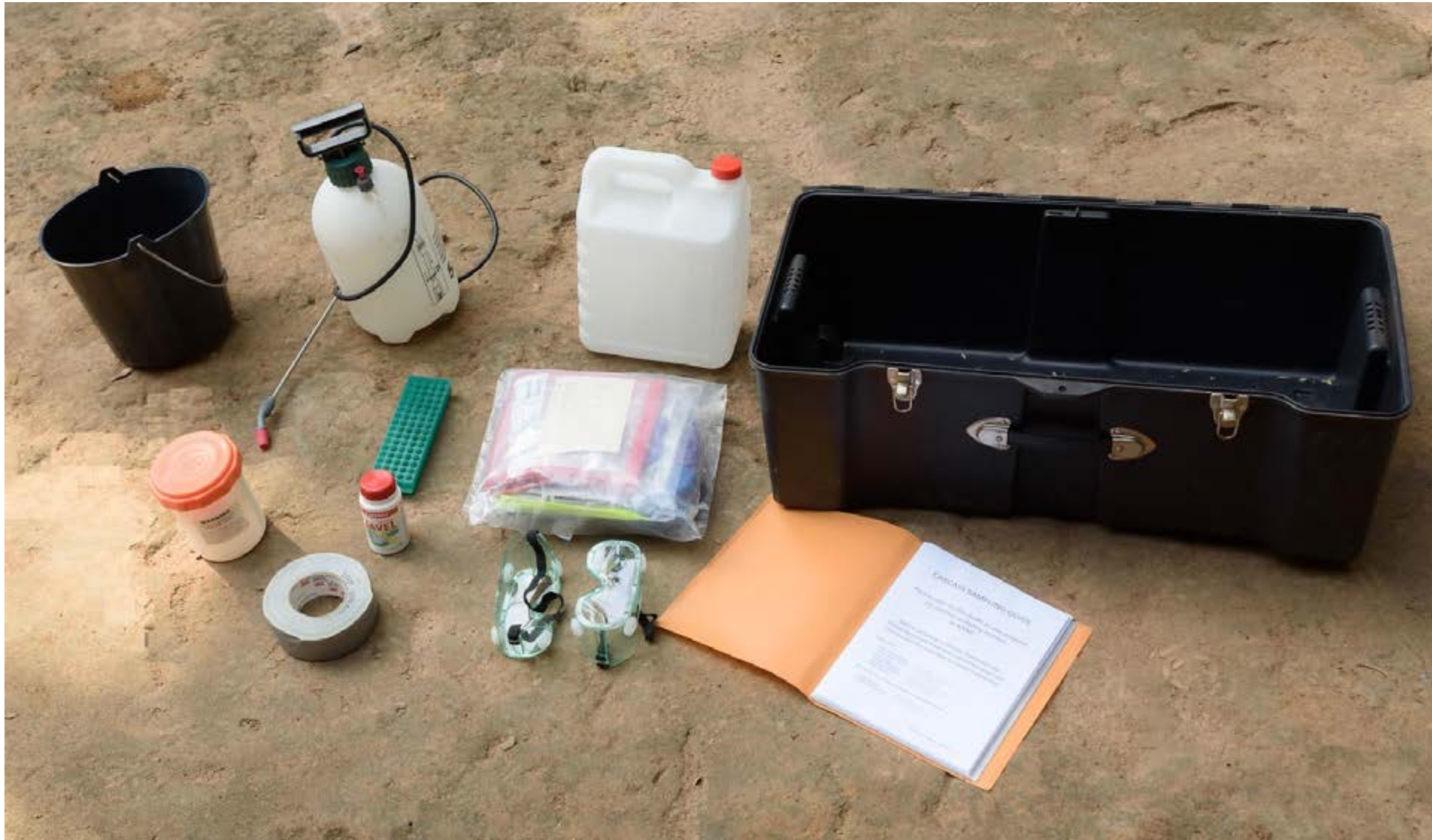


**“Two person protocol  
for minimal exposure sampling  
of wildlife carcasses”**

- ~Redundant biosafety~
- ~Buddy system~
- ~Minimally invasive swab sampling~
- ~Immediate de-activation of sample~
- ~High quality diagnostic specimen~



## Safe and rapid response to carcass reports in remote locations





Safe and rapid response to carcass  
reports in remote locations

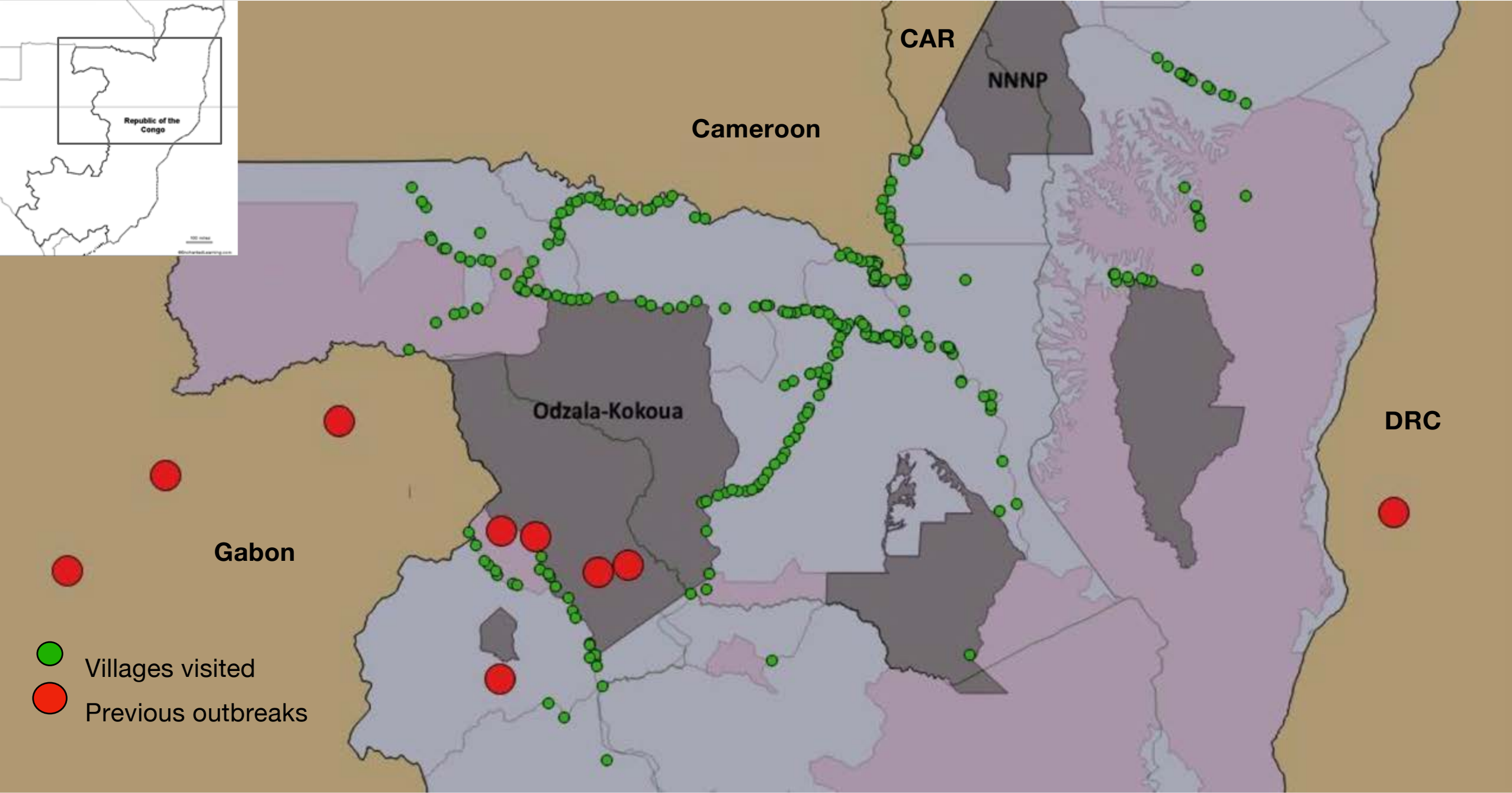




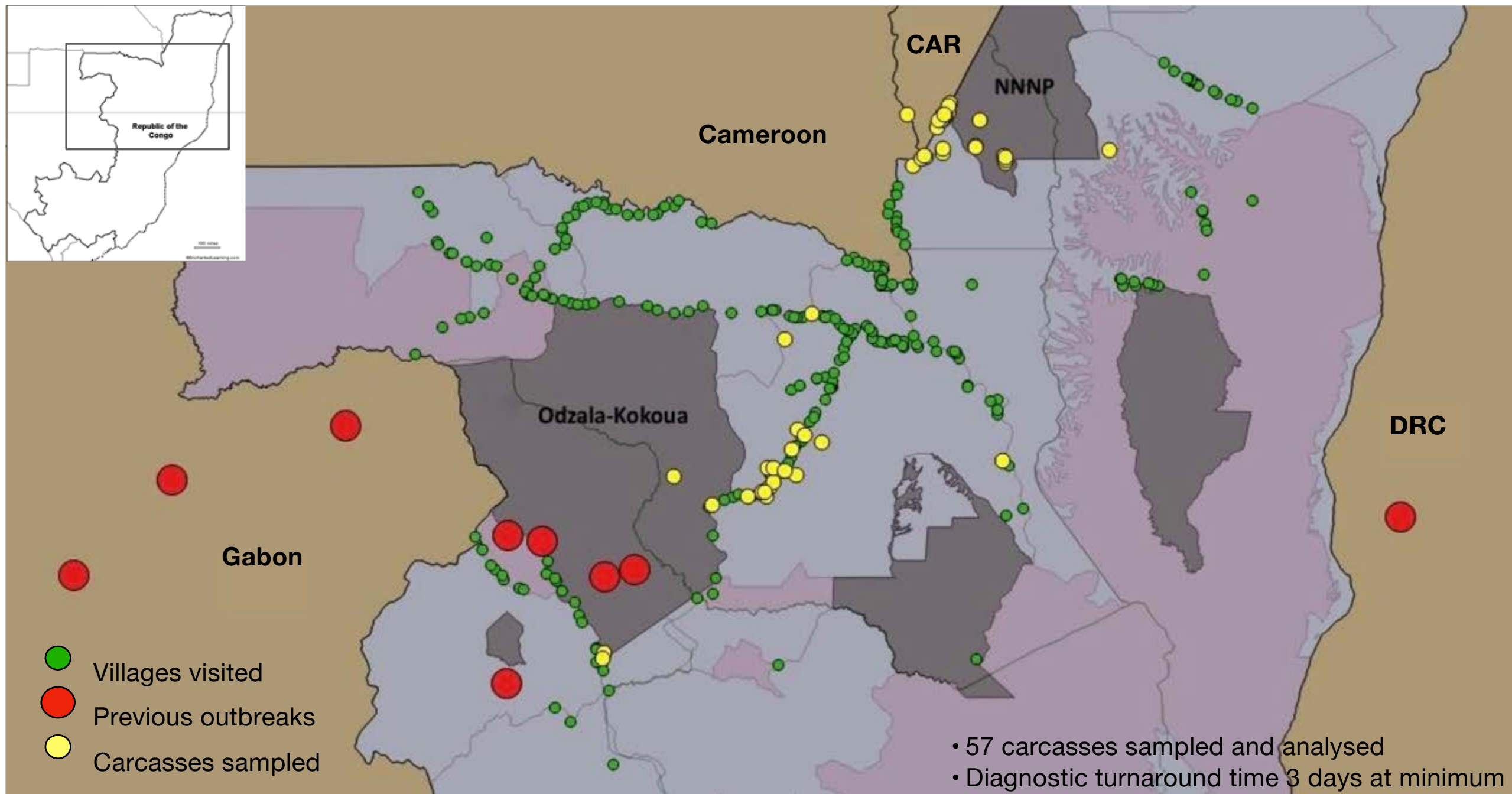
# Capacity for qRT-PCR analysis - National Public Health Laboratories





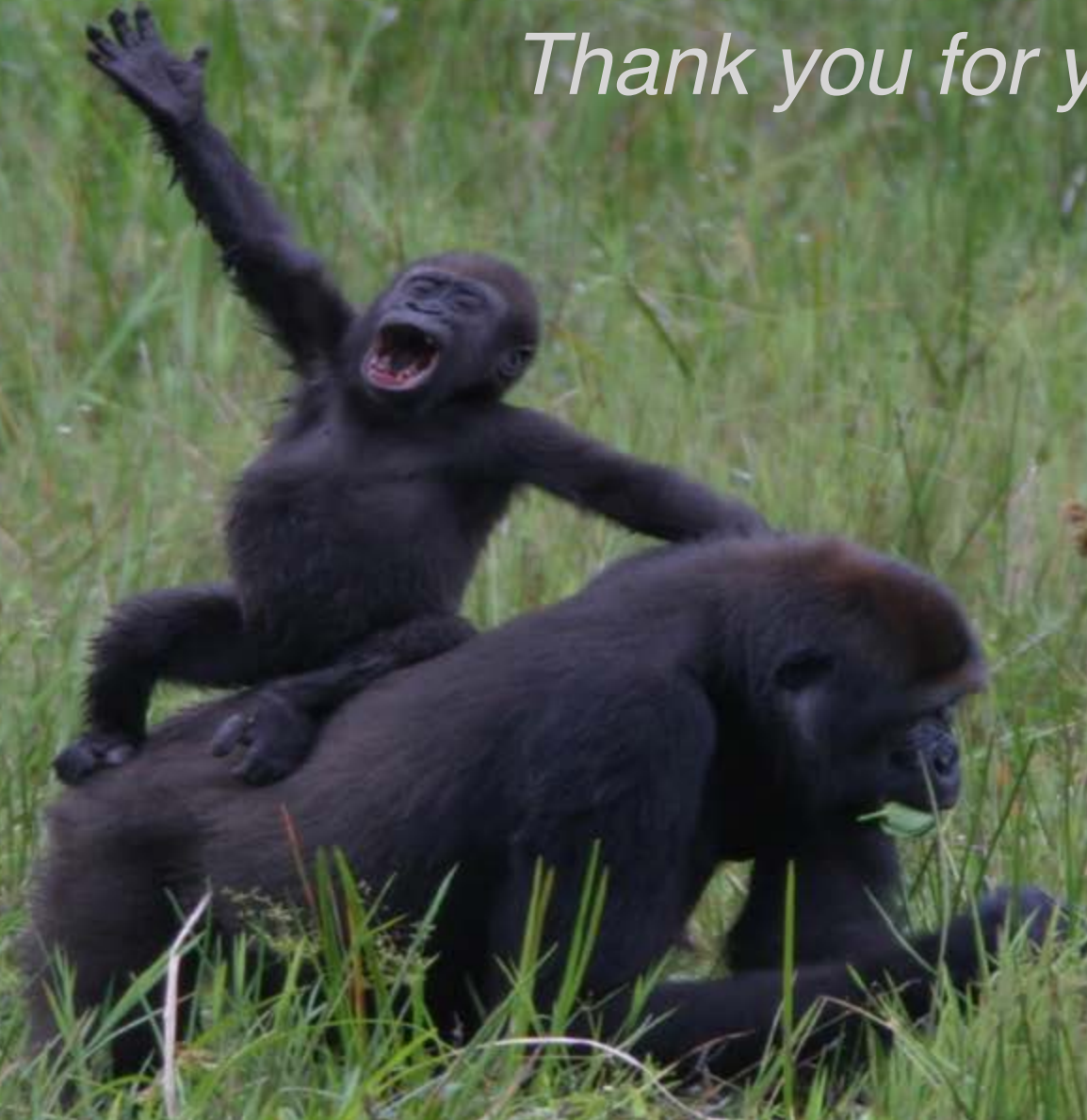








*Thank you for your attention*





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ROCKY  
MOUNTAIN  
LABORATORIES



Ken Cameron  
Patricia Reed  
William Karesh  
Sarah Olson  
Vincent Munster  
Jean-Vivien Mombouli  
Robert Fisher  
Alain Ondzie  
Marc-Joël Akongo  
Serge Kaba  
Cynthia Goma-Nkoua  
Henri-Joseph Parra  
Fabien Roch Nyama  
Cesar Munoz-Fontela



Photos:  
Sebastien Assoignons  
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Sarah Olson  
Jean-Pierre Sagette



