



photo credit: Priyambodo

# Qualitative Analysis of Sumatran Rhino's Fecal DNA Extraction on Time Series Data Collection

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# Sumatran rhino

- There are 7 captive sumatran rhino in semi in situ Sumatran Rhino Sanctuary.
- Phylogenetic study of sumatran rhino based on molecular analysis was unavailable in Sumatran Rhino Sanctuary, Way Kambas National Park.



photo credit: Sumatran Rhino Sanctuary



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# Phylogenetic study

- In order to keep up with its existence in the wild, phylogenetic tree will be constructed and individual molecular profiles of its population in the captivity are needed

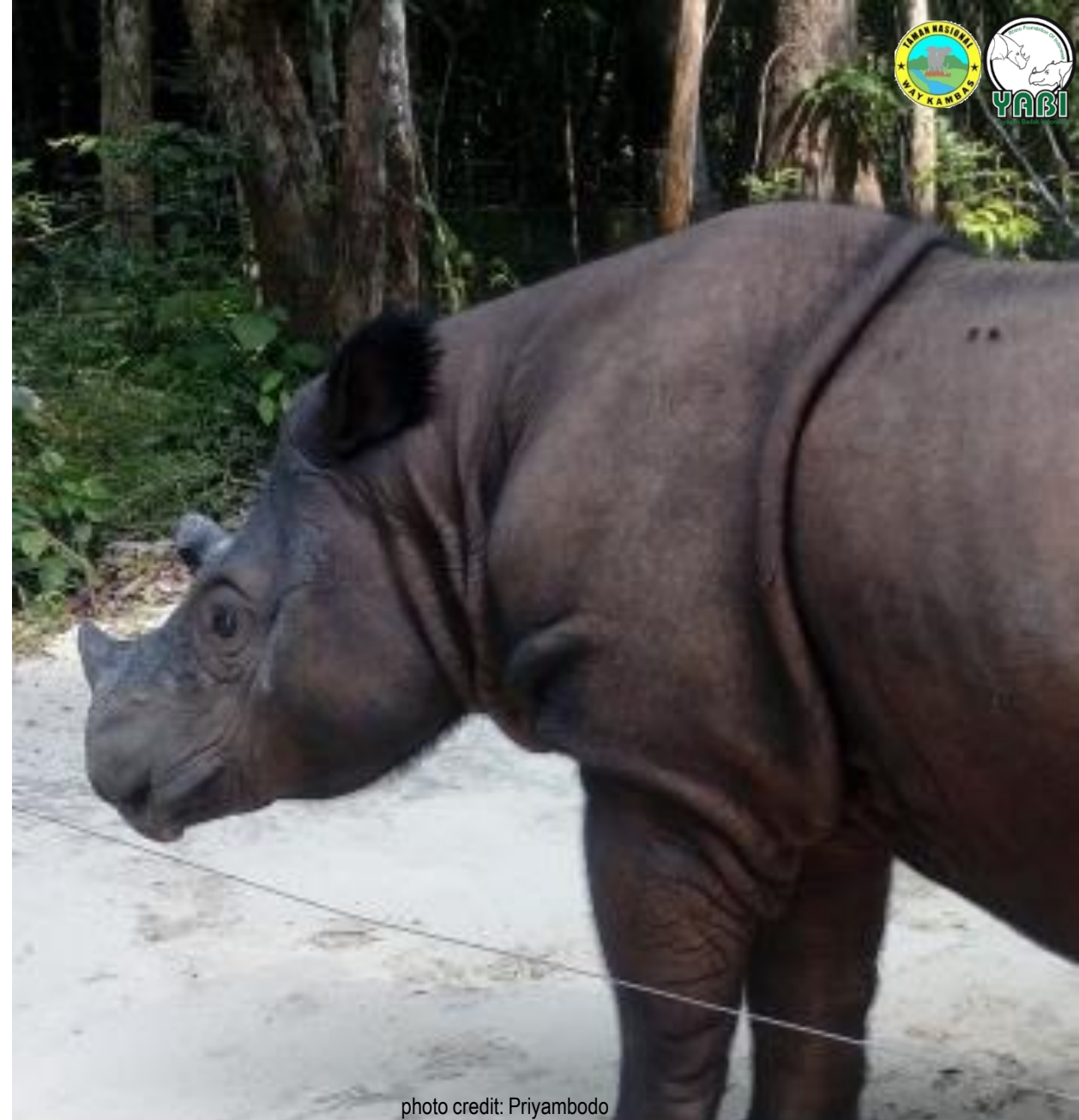


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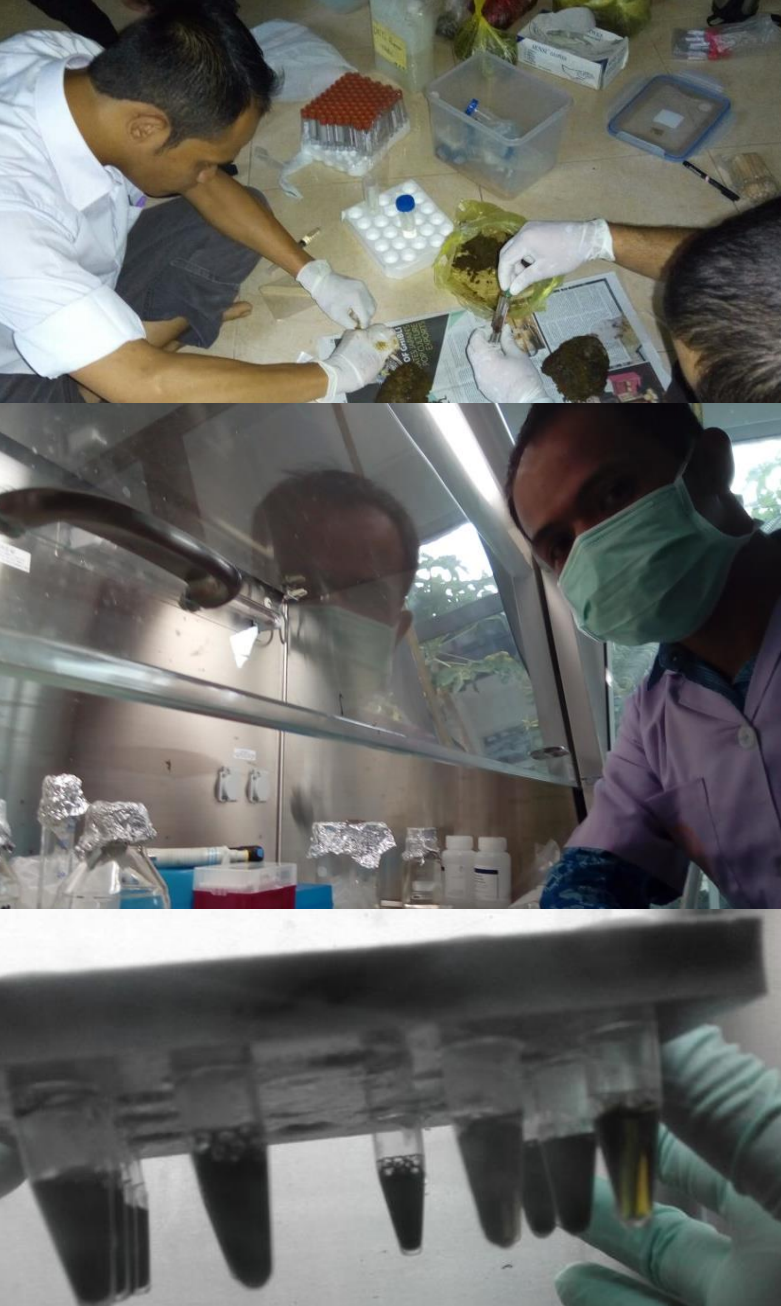
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# Research goal

- This project research was conducted:
  - To collect DNA from each individual captive sumatran rhino by non-invasive method
  - to describe the quality of fecal DNA that collected from time series sampling activity.



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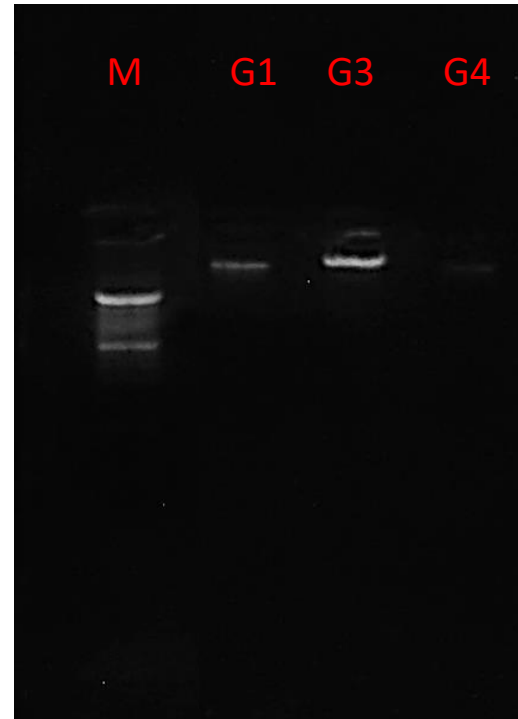
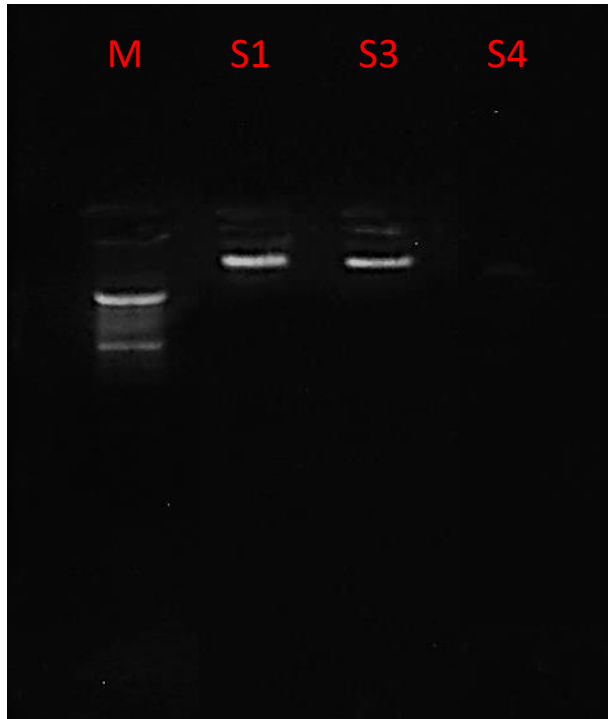


# Research methods

- Six fecal material samples was collected from total 7 individuals.
- Fecal material samples were handled by two different methods for mucus collection, **swab** and **grinding** methods.
- Mucus was taken on day 1, day 3, and day 4 for each sample.
- DNA extraction was done by commercial procedure and continued by qualitative analysis with 1% gel horizontal electrophoresis.



# Qualitative Analysis



M : marker  
S : swab  
G : grinding  
1 : 1<sup>st</sup> day  
2 : 2<sup>nd</sup> day  
3 : 3<sup>rd</sup> day

# Discussion

- The absent of DNA band on day 4 caused by decomposition level of fecal samples which loss of mucus as convenient source of DNA.



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# Discussion

- Loss of mucus at feces = loss of source of DNA
- Mucus at feces contain ephitelial tissue from colon



photo credit: Sumatran Rhino Sanctuary



# Discussion

- Decomposition of feses caused by **physical factor** (humidity, temperature, etc.) and **biological factor** (microbes activity)



photo credit: Sumatran Rhino Sanctuary



# Conclussion

- Representative DNA from feses could be extracted from fresh feses (day 1 and 2) while mucus present



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