

# New Insights in the Distribution of White-Cheeked Gibbons *Nomascus siki* and *N. leucogenys* in Central Lao PDR



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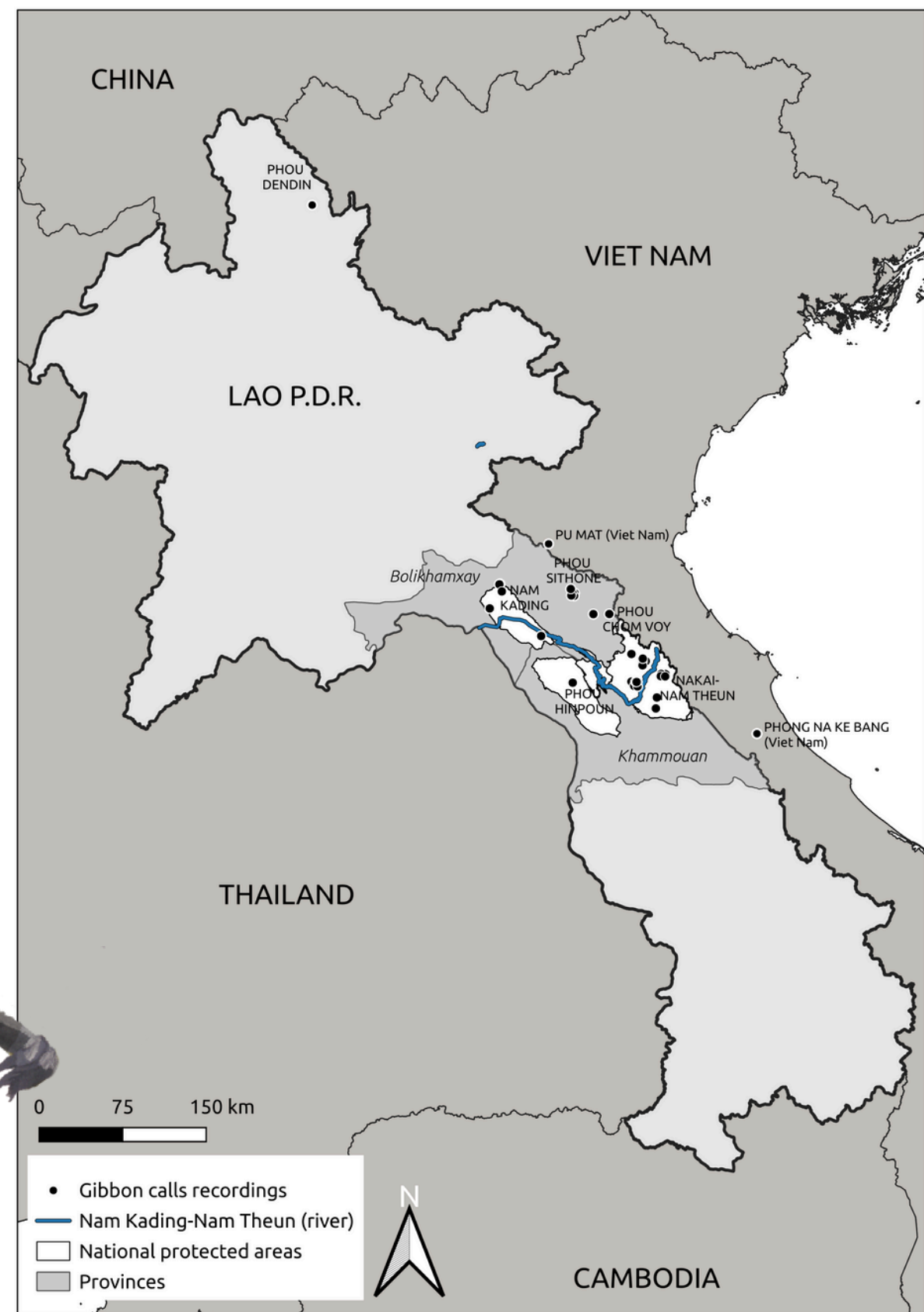


## INTRODUCTION

- Gibbons of the genus *Nomascus* are the **most threatened** of the four Hylobatidae genera
- The **Northern White-cheeked Gibbon *Nomascus leucogenys*** and the **Southern White-cheeked Gibbon *Nomascus siki*** have a restricted global range: they are **endemic to Lao PDR and Viet Nam**
- In central Lao PDR, the **distribution range limit between *N. leucogenys* and *N. siki* still needs to be determined**, preventing appropriate conservation planning
- It has been **speculated** that the **Nam Theun-Nam Kading river** represents the **geographical barrier** between the two species, but this **needs more investigation**
- Gibbon songs** are **taxonomically distinct** between species and, when analyzed, can identify the taxonomic status of a species

## METHODOLOGY

- Aim:** investigate the **distribution of *N. leucogenys* and *N. siki*** in central Lao PDR, across two provinces: Bolikhamxay and Khammouan
- We collected **gibbon song recordings**:
  - In-situ** gibbon recording: **90 *Nomascus* gibbon songs** included in this analysis
  - Ex-situ** gibbon recording: **24 song recordings of *Nomascus leucogenys* and 8 *N. siki*** from **12 European zoological facilities**
- We extracted **significantly different acoustic parameters** for males (n=10) and females (n=12) from songs recorded in captivity, used as **training data** for a **species classification analysis** of vocal recordings of **unknown species from the wild**
- We used these acoustic parameters for both males and females as **training data** to perform a **Random Forest species classification analysis** of vocal recordings of **unidentified species from the wild**.



Locations where the 90 *Nomascus* gibbon songs included in this analysis, obtained from the wild, were recorded from seven sites in central Lao PDR and Viet Nam.



Male  
Northern White-cheeked Gibbon  
*Nomascus leucogenys*

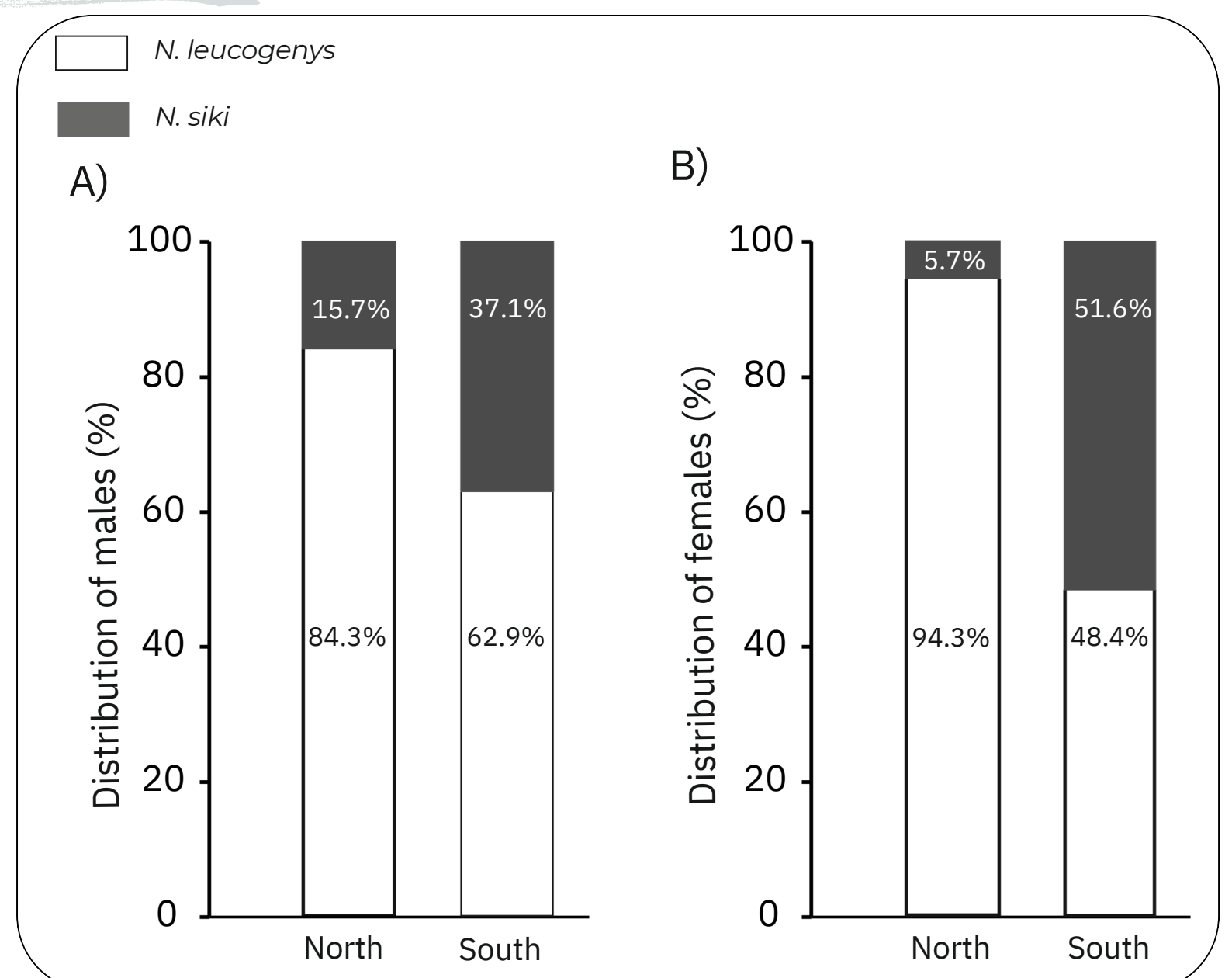


Male  
Southern White-cheeked Gibbon  
*Nomascus siki*



## MAIN FINDINGS & CONCLUSIONS

- Our **classification accuracy** was **97% for males** and **89% for females**
- We detected **both *Nomascus siki* and *N. leucogenys*** on **both sides of the Nam Theun-Nam Kading River** in Nakai-Nam Theun National Park and surrounding areas in Central Lao PDR and Vietnam
  - Males calls:**
    - North of river:** 85% *N. leucogenys*, 16% *N. siki*
    - South of river:** 63% *N. leucogenys*, 37% *N. siki*
  - Female calls:**
    - North of river:** 94% *N. leucogenys*, 6% *N. siki*
    - South of river:** 48% *N. leucogenys*, 52% *N. siki*
- These findings **must be taken into consideration** as part of potential **reintroduction, rehabilitation or translocation programs** for both species in this region.



Vocalizations classification results showing the distribution of the male calls (A) and female calls (B) of *N. siki* and *N. leucogenys* to the north and south of the Nam Theun-Nam Kading river in central Laos and Vietnam