

# Creatures of the Night: Informing Taxonomy of Slow Lorises

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## Abstract

Slow Lorises are arboreal, nocturnal primates that are indigenous to the rainforests of South and Southeast Asia; however, they typically are found in various habitats. Slow loris taxonomy has been contentious and it has been suggested that studying fur patterns, which are important for species recognition in nocturnal animals, may clarify this debate. We attempted to distinguish amongst the several species in the genus *Nycticebus* using characteristics of the dorsal stripe, including lengths, widths, ratios, fur coloration, and shape by analyzing 37 photographs of museum specimens using Image J software. We found this method to be somewhat effective at differentiating some species, specifically the Javan slow loris and the Bengal slow loris. Overall, the Bengal slow loris tended to be the most distinguishable species when analyzing dorsal stripes and the Javan slow loris seemed to have the greatest amount of variance. With a larger sample size, we hope to further validate the claim that analyzing dorsals stripes is an effective method to be used in taxonomy.

## Materials

•1 light source •1 camera mount •37 Samples •Gloves •Ruler •Image J software

## Methods

- 1) In a low lit room, place the camera mount on a stable surface
- 2) Place the camera in its proper position on the camera mount at 21 inches above the surface
- 3) Place the ruler directly on the edge of the camera mount surface, so as to have it appear picture. Place a white sheet under the ruler to make the measurements more visible.
- 4) While wearing the gloves, place the sample flat under the camera. Have another partner use a light source to reflect on the sample.
- 5) Slowly, take the photo. Make sure that the ruler is visible. Using the Image J software: 1. File Open -> Click On Image 2. Click Line 3. Draw the line exactly one centimeter long in respect to the ruler in the photo 4. Go to analyze and set scale 5. In the box labeled "Distance" type in 1, and in unit of length type in centimeters 6. Click Ok
7. Draw desired length with line two on the photo using line two
8. Click analyze and measure
9. Record data



Example of a frosted dorsal stripe on a museum specimen.



A pygmy slow loris at Cuc Phuong National Park, Vietnam

## Results

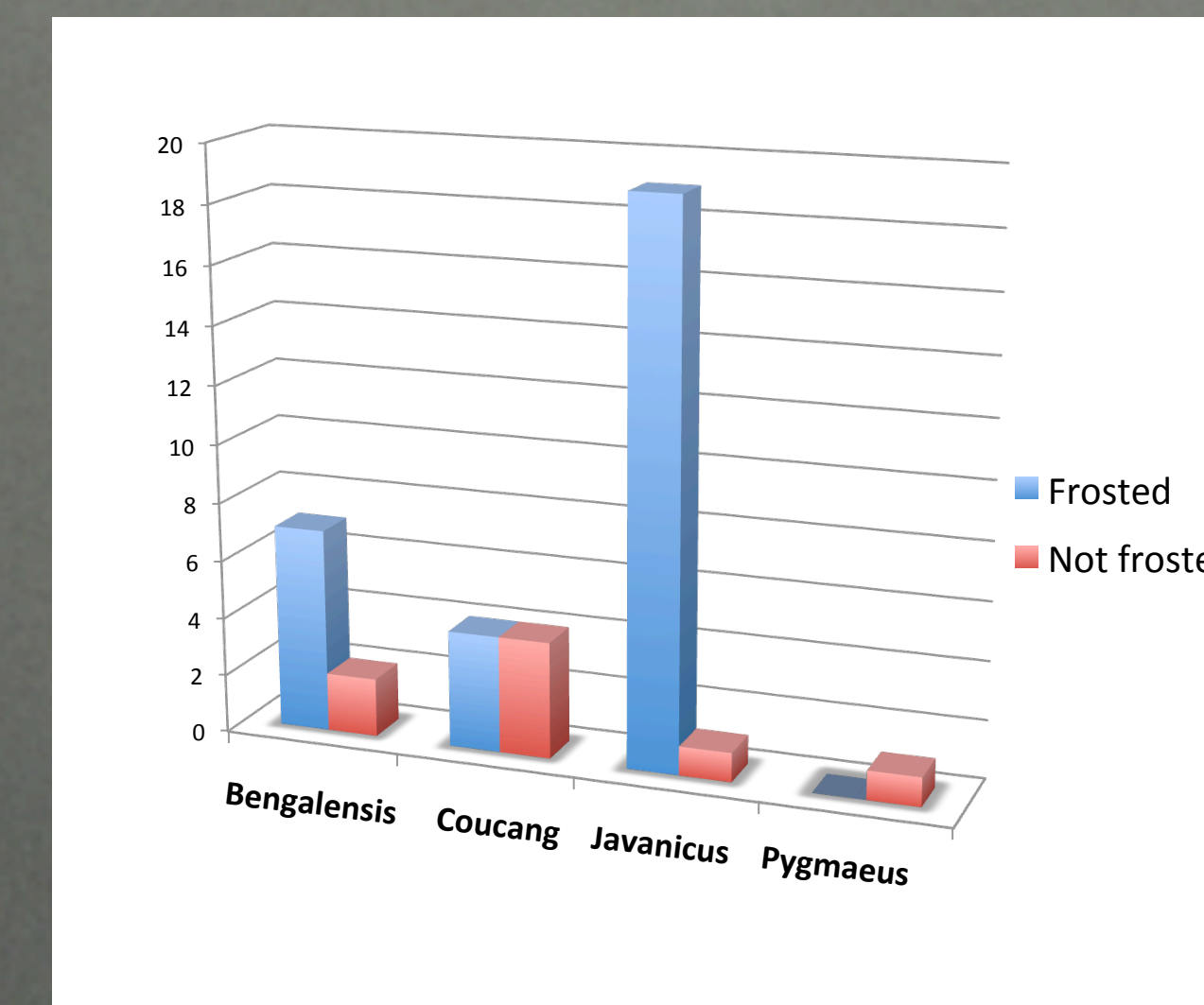


Figure 3 depicts frosted (having a white outline) presence among the loris samples.

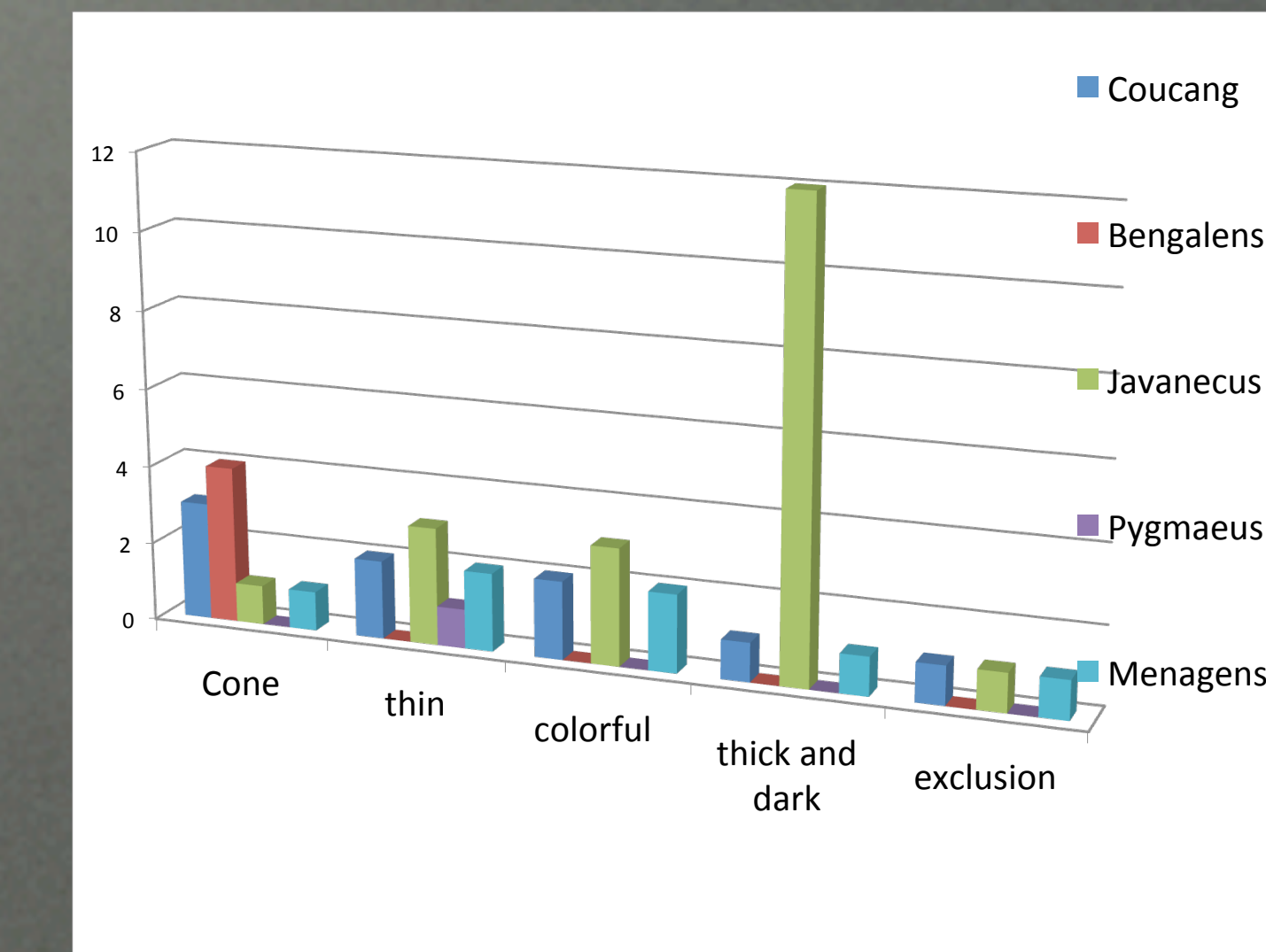


Figure 2 included the physical color and size of the dorsal stripe; thick and dark was the most varied among the Javan loris while relatively low in pygmaeus and bengalensis

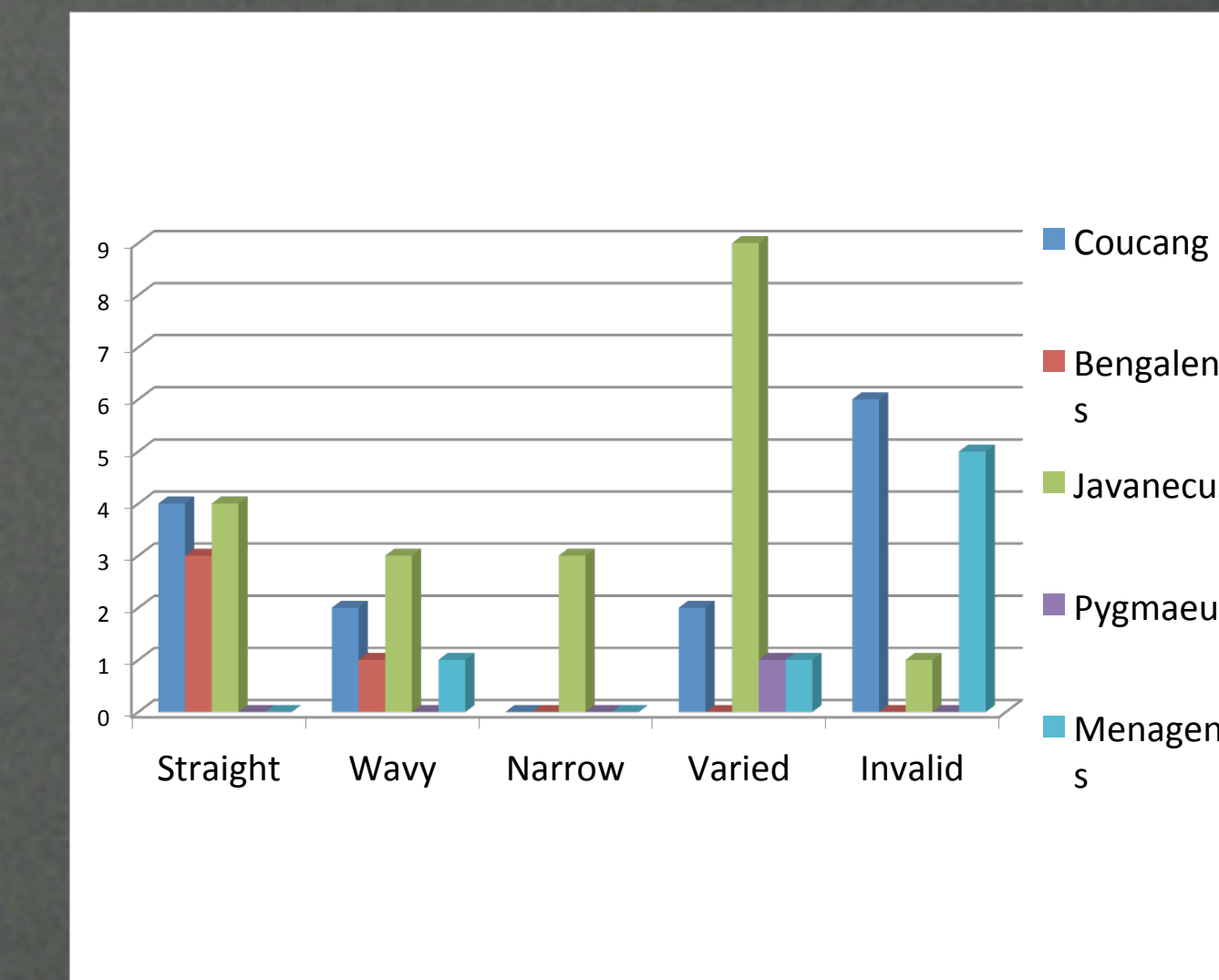


Figure 1 depicts the various dorsal shape among the slow loris samples. Those considered invalid were either too small or lacked a visible dorsal. The most common trait was a straight dorsal.

## Discussion

The results we obtained showed that using the dorsal stripe to identify various species of the slow loris would be most useful in identifying the most distinct of the species. Overall, *N. bengalensis* tended to be the most distinguishable species when analyzing dorsal stripes and *N. javanicus* seemed to have the greatest amount of variance. All the taxa listed were once considered subspecies of *N. coucang*, however, and their close relationships indicate that there might be occasional mating between the slow loris species (an example would be the hybrid of *N. coucang* and *N. bengalensis* that currently resides in Thailand). It is possible that the samples we obtained may have contained a hybrid, as the results of the head to tail ratio indicate a similarity between *N. bengalensis* and *N. menagensis*. In the future, besides having a greater number of samples of each species it would be interesting to distinguish the males from the females.



Hybrid slow loris species in Borneo.



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