

The background of the slide is a dark, atmospheric photograph. In the lower-left corner, three lit candles are visible, their flames casting a soft glow. Wisps of white smoke or steam are rising from the candles and drifting across the bottom of the frame. The overall scene is dimly lit, with the primary light sources being the candles and the text itself.

BATS Phylogenetics

Shumkova Victoria, ITMO



Chiroptera (Bats)



Chiroptera is the order of mammals commonly known as bats. They are the only mammals capable of sustained flight, with adaptations that allow them to navigate and hunt in the dark.

Species List

Rousettus lanosus (Long-haired Fruit Bat)

Epomops franqueti (Franquet's Epauletted Fruit Bat)

Balionycteris maculata (Spotted-winged Fruit Bat)

Epomophorus wahlbergi (Wahlberg's Epauletted Fruit Bat)

Megaloglossus woermanni (Woermann's Long-tongued Fruit Bat)

Myonycteris torquata (Little Collared Fruit Bat)

Nycteris thebaica (Egyptian Slit-Faced Bat)

Rhinolophus hipposideros (Lesser Horseshoe Bat)

Saccopteryx bilineata (Greater Sac-winged Bat)

Rousettus amplexicaudatus (Geoffroy's Rousette Fruit Bat)

Macroglossus minimus (Lesser Long-tongued Fruit Bat)



Fruit bats (Megabats/Pteropodidae)



spotted-winged fruit
bat (*Balionycteris
maculata*)



long-tongued nectar bat
(*Macroglossus minimus*)



long-haired fruit bat
(*Stenonycteris lanosa*)



Franquet's epauletted
fruit bat (*Epomops
franqueti*)

Rhinolophidae



lesser horseshoe bat
(*Rhinolophus*
hipposideros)

Nycteridae



egyptian slit-faced bat
(*Nycteris thebaica*)

Emballonuridae



greater sac-winged bat
(*Saccopteryx bilineata*)



Carlito syrichta

OUTGROUP

Philippine Tarsier

Native to the Philippines, particularly found on several islands including Bohol, Leyte, Mindanao, and Siargao.

Small primate with large, round eyes that provide excellent night vision. Their head can rotate almost 180 degrees, and they have long fingers and toes adapted for grasping branches. Their fur is typically soft and dense, ranging from gray to brown.



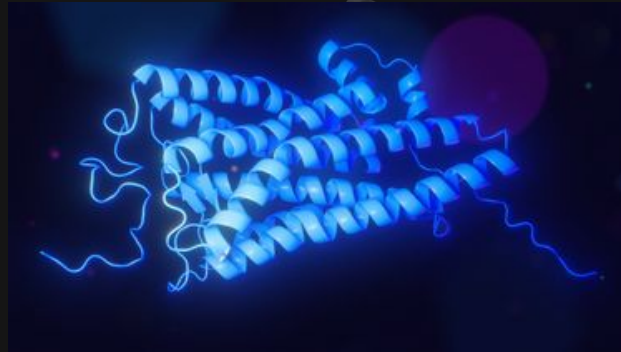
GENES for analysis

MT-CYB gene

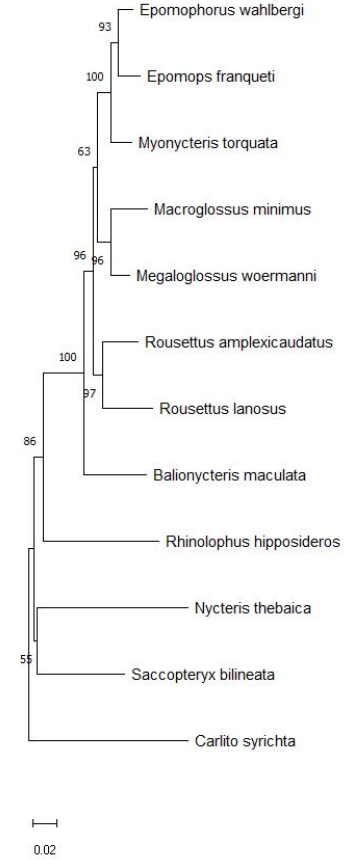
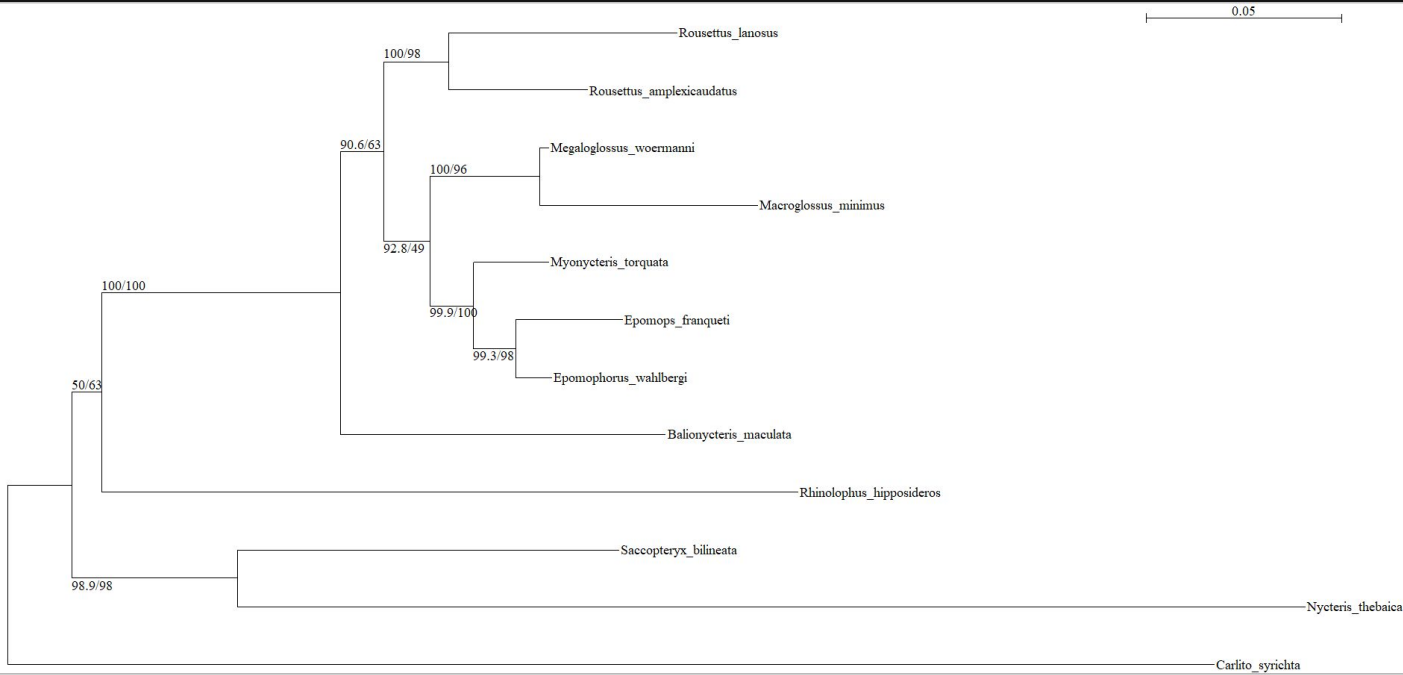
Cytochrome b is commonly used as a region of mitochondrial DNA for determining phylogenetic relationships between organisms, due to its sequence variability.

OPN1SW gene

Short-wave sensitive opsin 1, a protein that is essential for normal color vision.

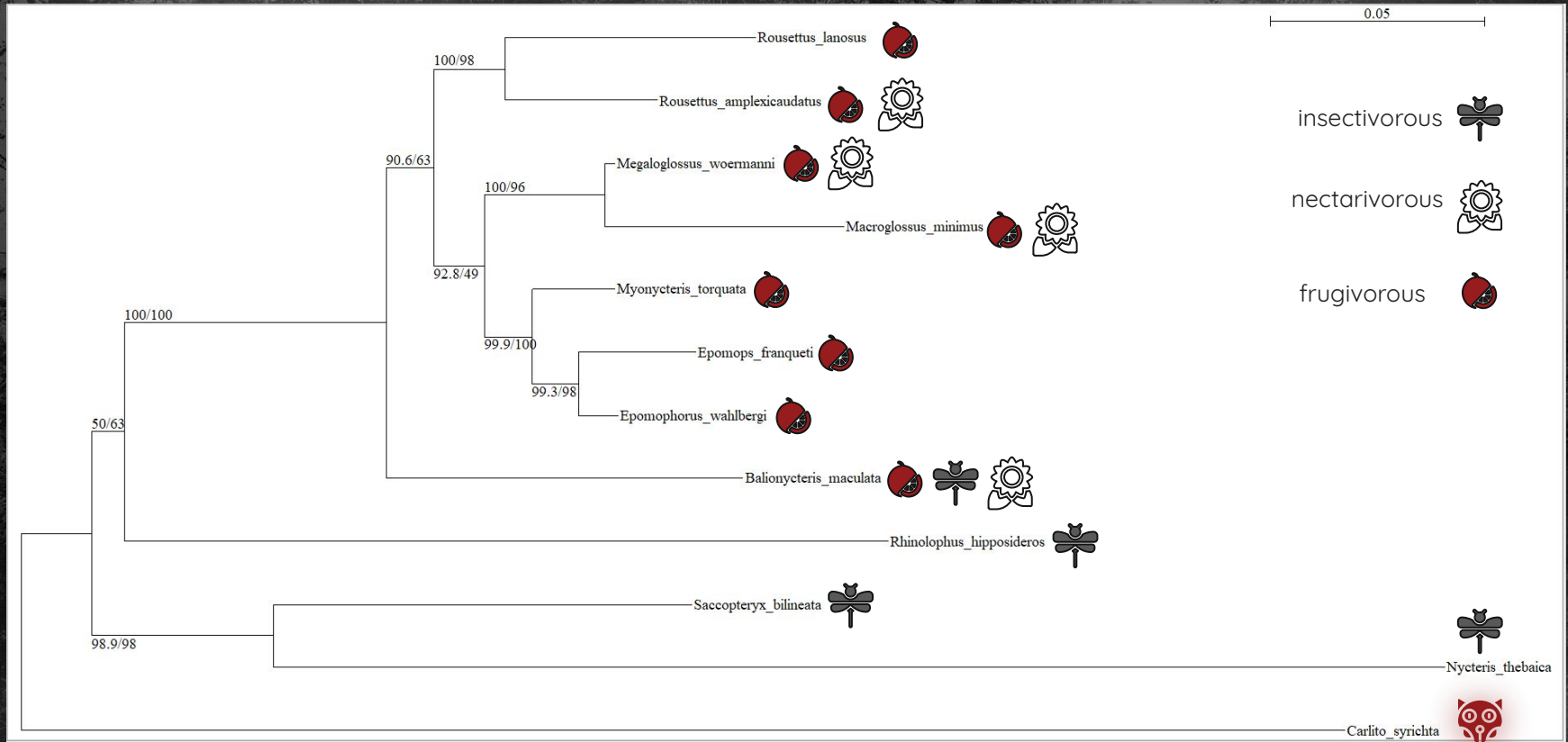


Maximum-Likelihood tree

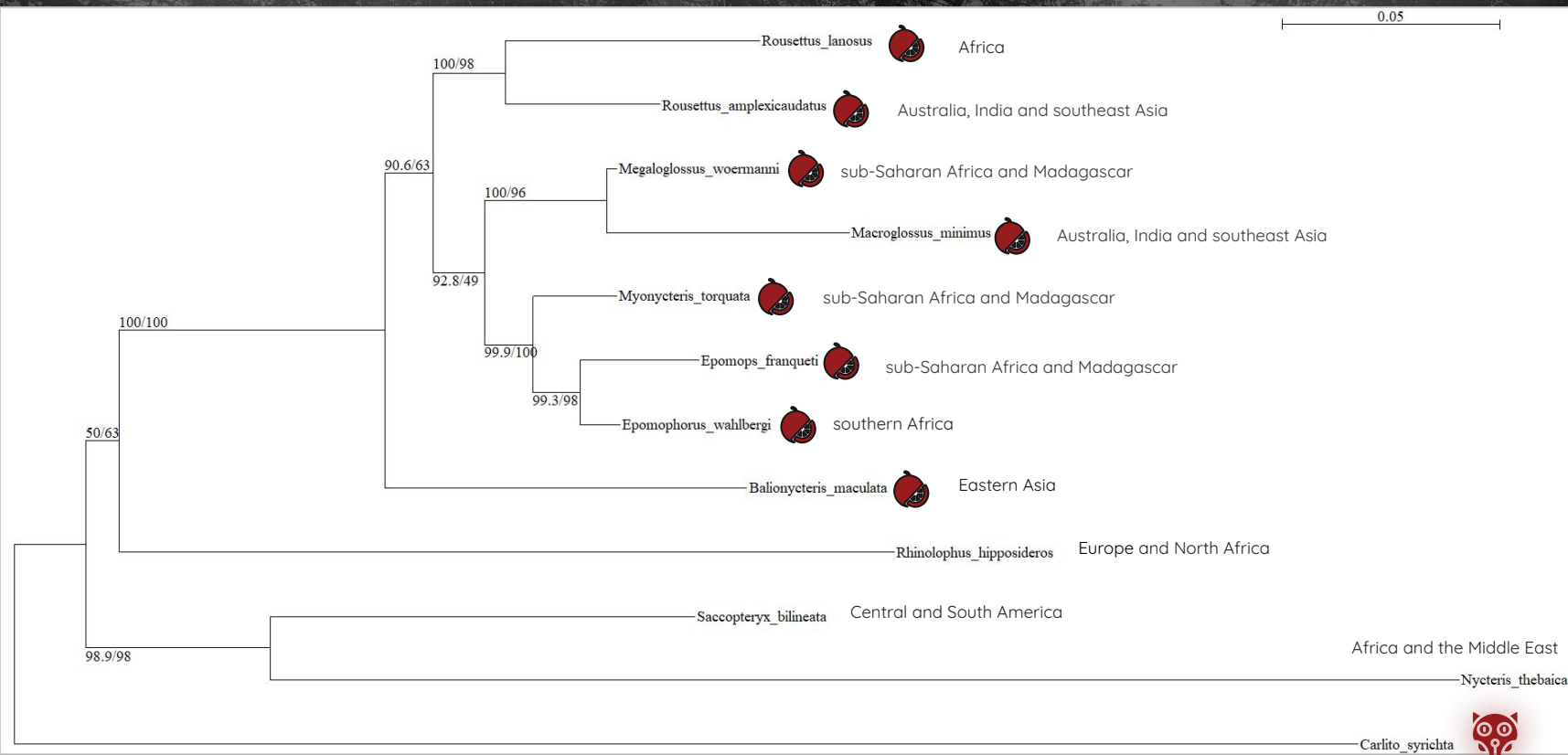


Neighbor-Joining tree

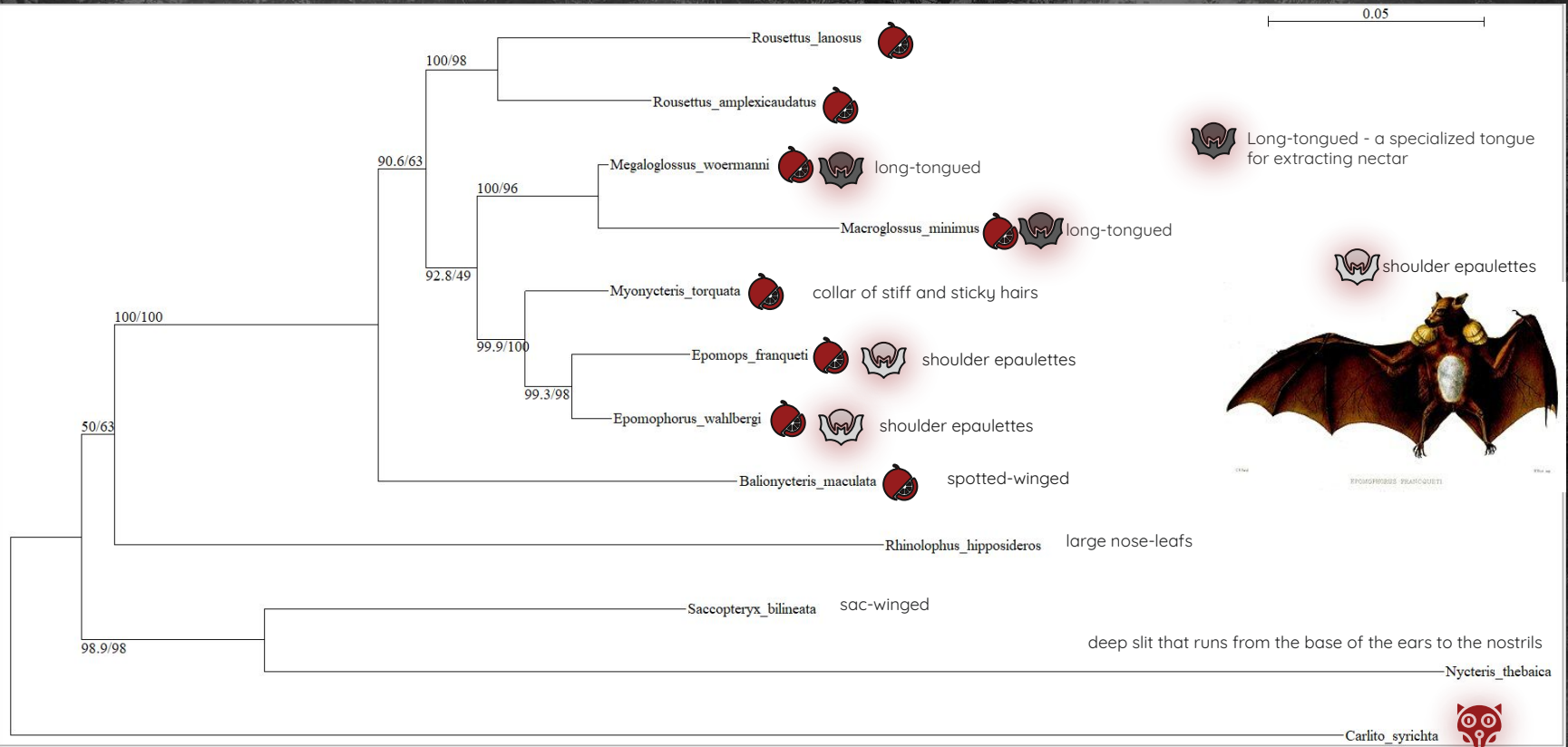
Food Habits



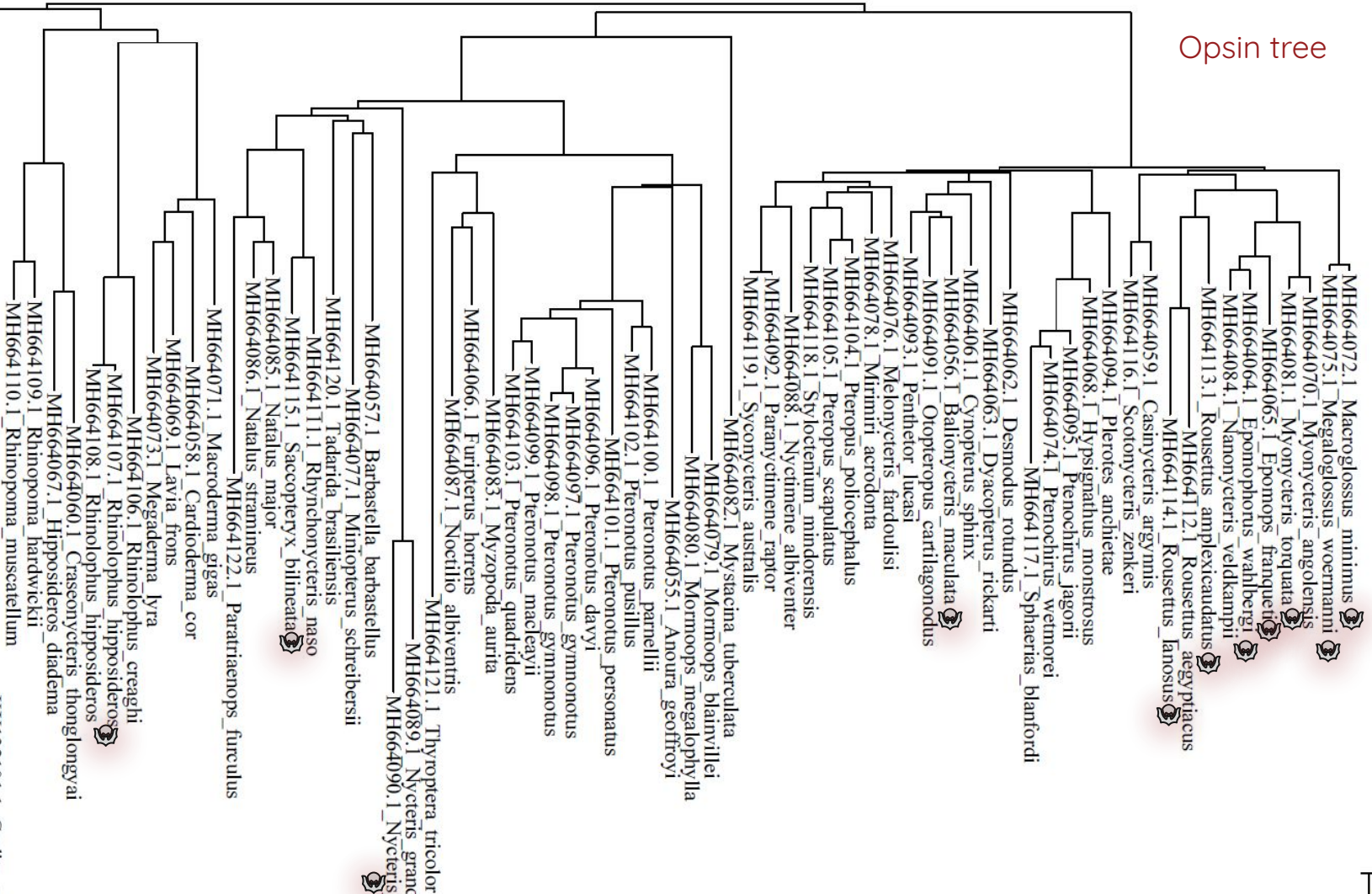
Range and Habitat



Phenotypic Characters



Opsin tree



RESULTS

- 👤 Fruit bats form monophyletic group.
- 👤 Species that shared common phenotypic trait (such as long tongue and shoulder epaulettes) are grouped together.
- 👤 *Rousettus amplexicaudatus* and *Rousettus lanosus* are grouped together. However, *Rousettus lanosus* now is *Stenonycteris lanosus*: the only member of the genus *Stenonycteris*. It was formerly classified in the genus *Rousettus* until a 2013 phylogenetic study found it to belong to its own genus and tribe.
- 👤 *Saccopteryx bilineata* and *Nycteris thebaica* are close to each other on the tree.



THANKS!

DO YOU HAVE ANY QUESTIONS?

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