

# Acrobatics to survive

## Salticidae and its hunting method

Andrés Jiménez Cuesta - Degree in Biology 2016/2017

### Introduction

Many species of spiders are specialized as snare builders, whereas others hunt their victims. This is a study regarding different species of arachnids from the Salticidae family that use mimicry with the environment and visual perception for establishing a method of predation.

### Objectives

- Contrast of advantages and disadvantages among other hunting methods.
- Provide a grasp of the visual perception and how it helps when hunting.
- Investigate the nervous system of Salticidae.
- Verify if it is an energetic-efficient strategy.

### Sticky web

Two types of sticky webs used by different kinds of spiders:

#### Funnel-web



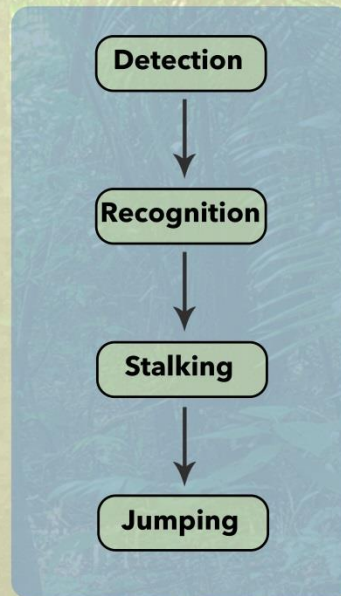
(www.whatsthatbug.com)

#### Orb-web



(www.sciencelogs.com)

### Assault



### Ambush

Three kinds of spiders use ambush as a hunting method:

#### Wolf spiders



(www.naturalezacuriosa.com)

#### Crab spiders



(www.maxisciences.com)

#### Tarantulas

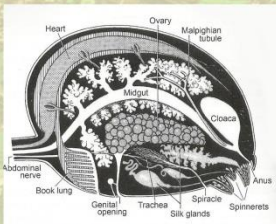


(www.rufford.org)

### Energy strategy

Most spiders possess two entirely different kinds of respiratory systems:

- **Book lungs**
- **Tubular tracheae**

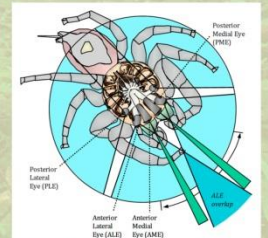


(Foelix, 2014, Pg. 38)

### Vision



(Edred from: www.ednoug.home.xs4all.nl)



(Jumping spider visio - David Hill)

### Conclusions

- Despite being a small family, the Salticidae has specialized in a very specific hunting method.
- The hunting method of assault owes its efficiency in major part to the well-developed vision of the Antero Medial Eyes and the Antero Lateral Eyes.
- Thanks to the presence of book lungs and tubular tracheae, the Salticidae has a big skilful aerobic capacity, that allows to maintain the efficiency of the jump.
- It is not the most energy-saver method of energy, but it is efficient.

### References

- Bartos, M. and Minias, P. (2016). Visual cues used in directing predatory strikes by the jumping spider *Yllenus arenarius* (Araneae, Salticidae). *Animal Behaviour*, 120, pp.51-59.
- Foelix, R. (2014). *Biology of Spiders*. 1st ed. New York: Oxford University Press, pp.3 - 17, 83 - 136, 188 - 218.
- Heinze, S. (2014). Neurobiology: Jumping Spiders Getting On Board. *Current Biology*, 24(21), pp.R1042-R1044.
- Menda, G., Shamble, P., Nitzany, E., Golden, J. and Hoy, R. (2014). Visual Perception in the Brain of a Jumping Spider. *Current Biology*, 24(21), pp.2580-2585.
- Japyassu, H. and Caires, R. (2008). Hunting Tactics in a Cobweb Spider (Araneae-Theridiidae) and the Evolution of Behavioral Plasticity. *Journal of Insect Behavior*, 21(4), pp.258-284.