



Exploring the potential effects of arthropod-infecting pathogens on pollination



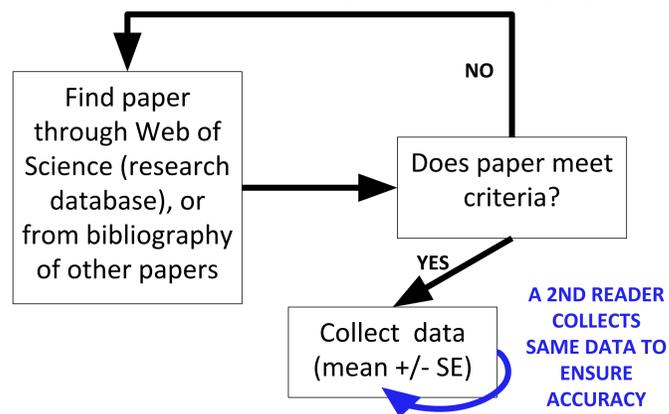
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Introduction

- Pollination (the fertilization of plants through the transfer of pollen) often involves arthropods:
 - ~85% of plants are pollinated by animals, the majority of which are arthropods (Ollerton et al. 2011)
 - Herbivores damage plants, thereby decreasing the amount of resources they can put into pollination
 - Predators consume pollinators and herbivores
- Pathogens infecting arthropod pollinators or herbivores might influence pollination
- Although pollination and arthropod disease have both been heavily studied, very little work has been done into the possible effects of arthropod pathogens on pollination

Meta-analysis Methods

Meta-analysis = collecting and analyzing data from previously published papers



Criteria for inclusion of papers

- Peer-reviewed primary scientific article
- Quantitative data on how an arthropod pathogen affected an host's population density, physiology, behavior, or morphology
- Arthropod must be a pollinator, herbivore, or predator of these

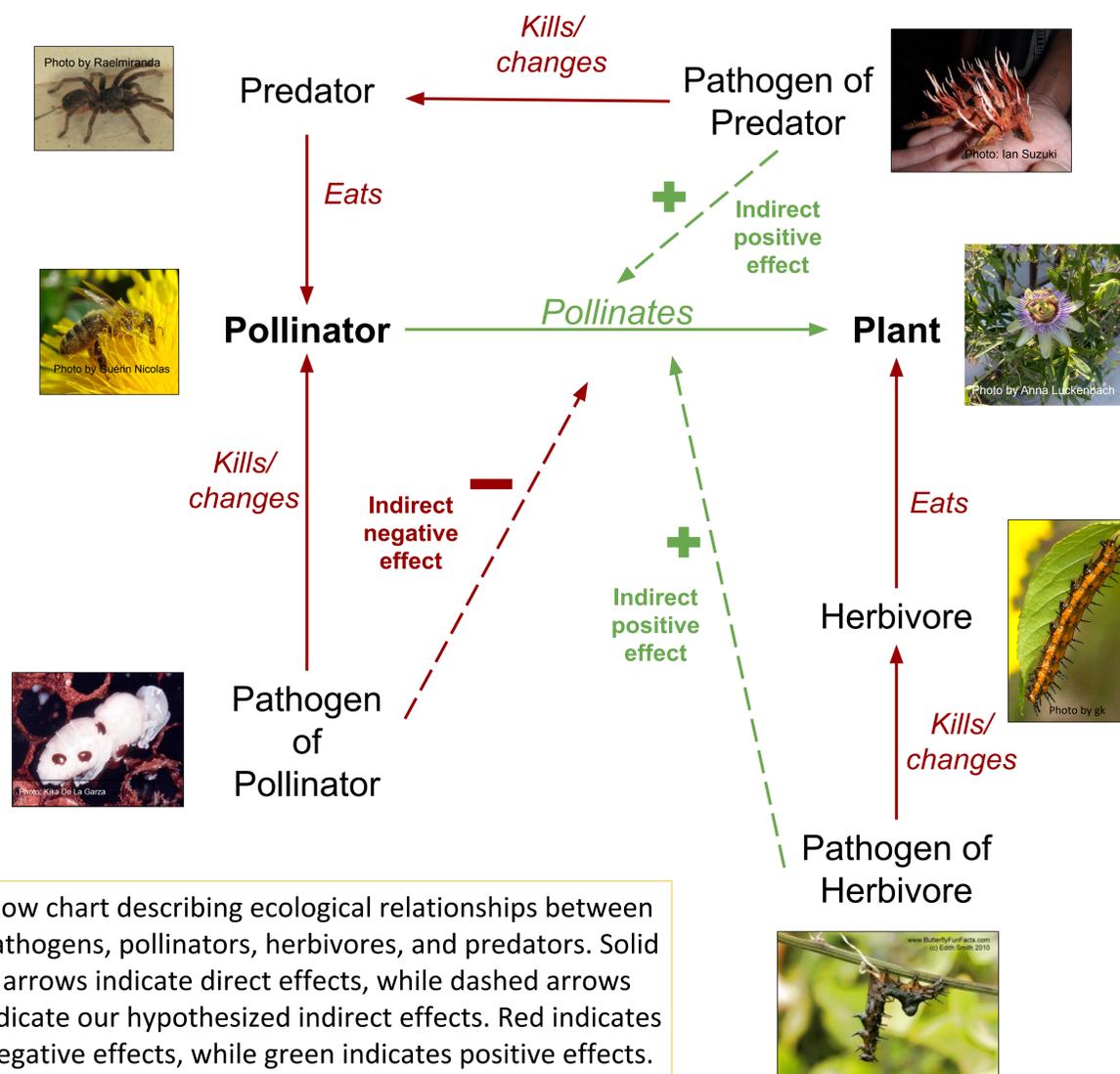
Research question

How do diseases of arthropods affect pollination?

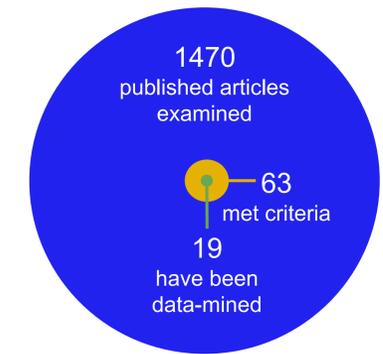
Specifically, we will investigate:

1. What is the current state of the literature on how pathogens affect arthropod pollinators and herbivores?
2. How do arthropod pathogens affect the population density, behavior, physiology, and morphology of arthropod pollinators and herbivores?

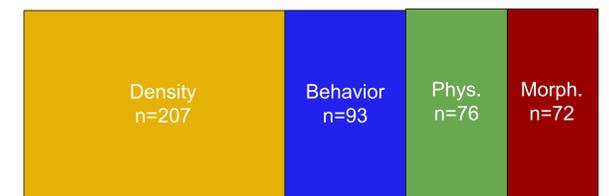
How might pathogens affect pollination?



Preliminary Results



Density was the most commonly measured effect, followed by behavior, physiology, and morphology (n= 448 measured traits from 19 papers)



Research in Progress

- Continuing to search for papers and extract data
 - Goal is data from >100 different papers
- Will analyze data in R using statistical techniques for meta-analysis
- Results will guide future experiments on how infection affects pollination

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