

# Avian Ecology: The Effect of Lunar Phases on Burrowing Owls

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## The Species

- This unique crepuscular species has been in decline for the past two decades<sup>1</sup>
- Some contributing factors are: low nesting success, high hatchling mortality rates etc.<sup>2,3</sup> foraging behaviour may have a part to play in their decline
- Despite awareness and conservation efforts, the species shows few signs of recovery

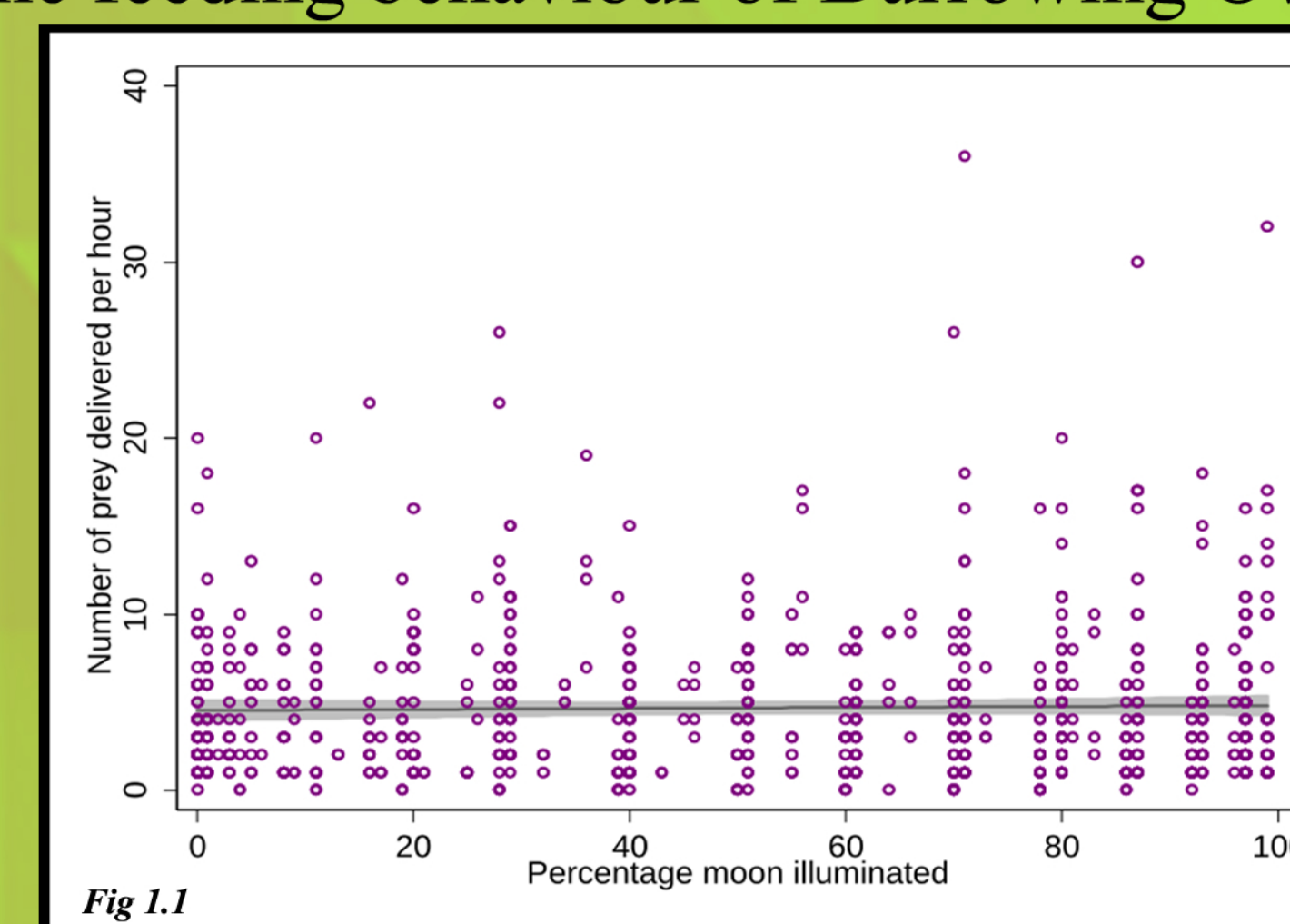
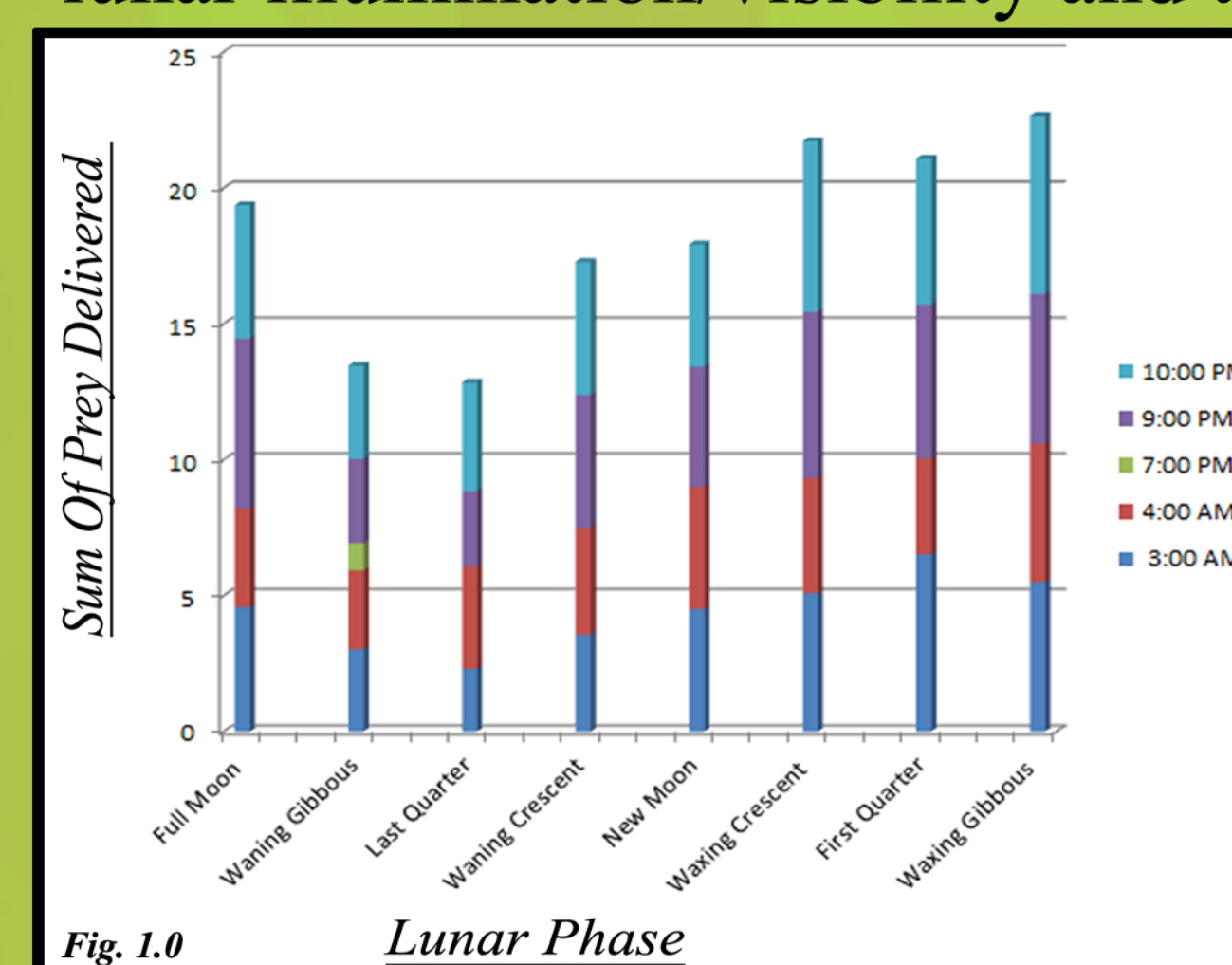


- Formation of queries using Microsoft Access relating lunar phases to different aspects of Burrowing Owl behaviour
- Statistical analysis/verification of all perceived correlations between lunar phases and Burrowing Owl behaviour via

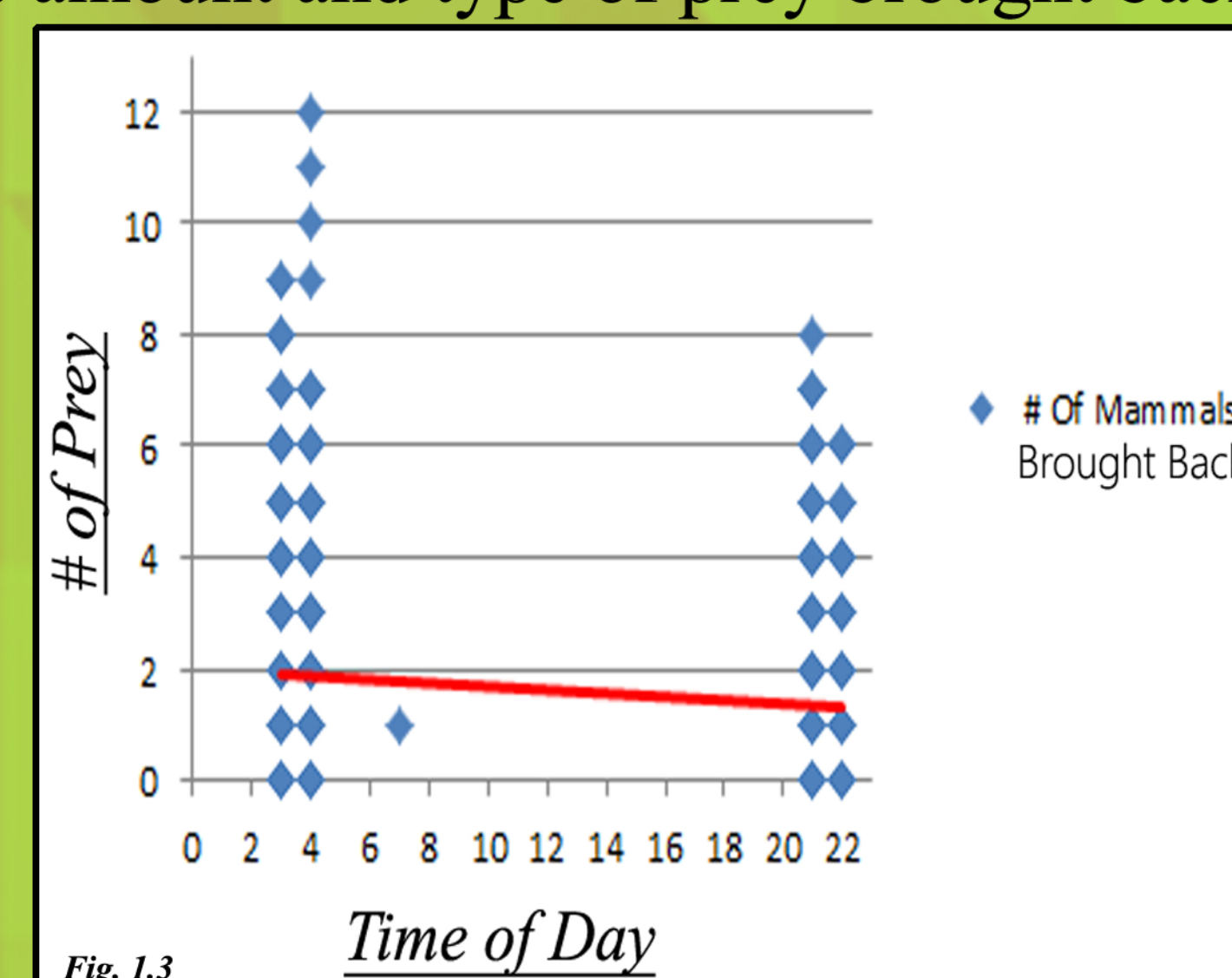
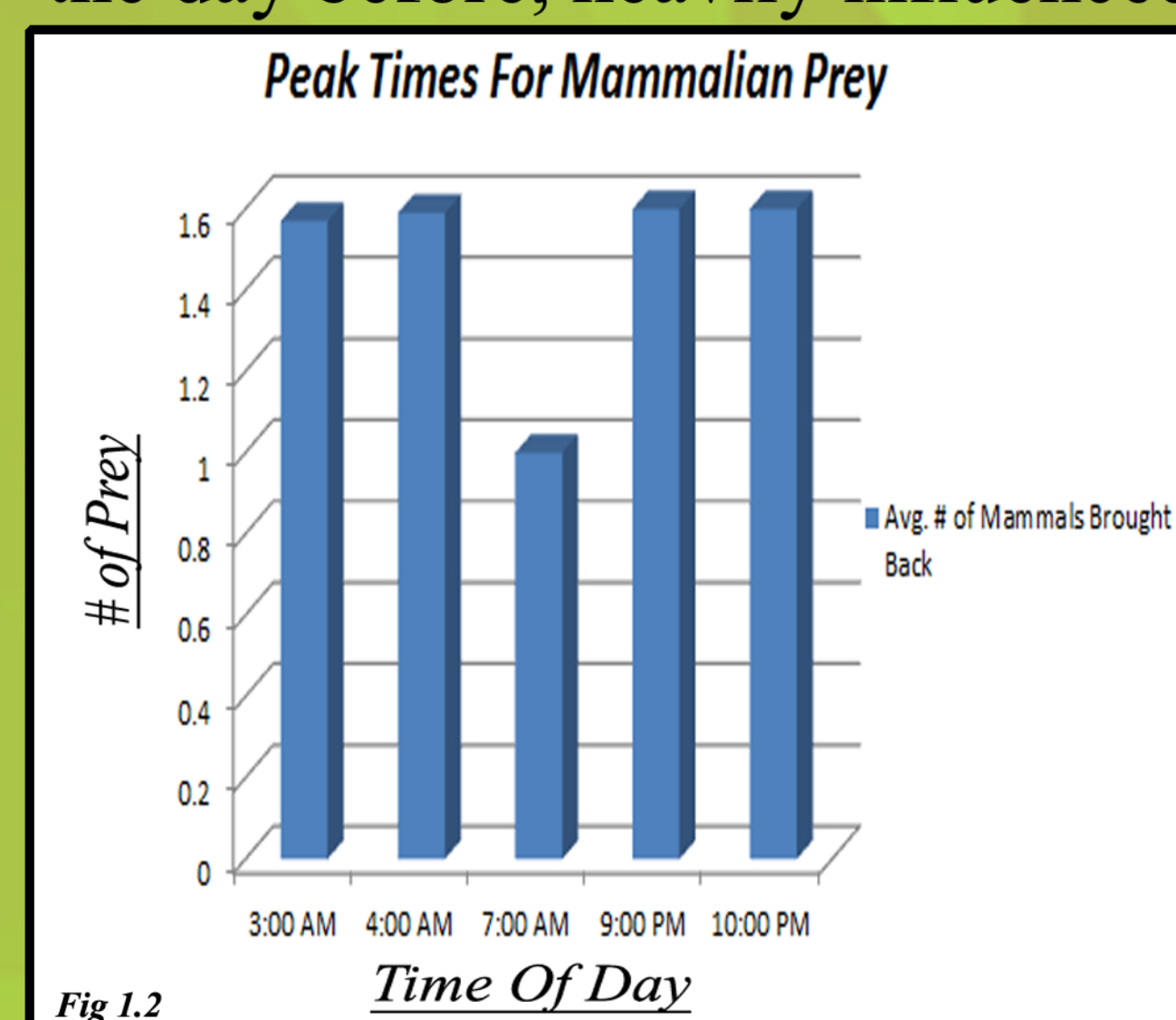


## The Answer

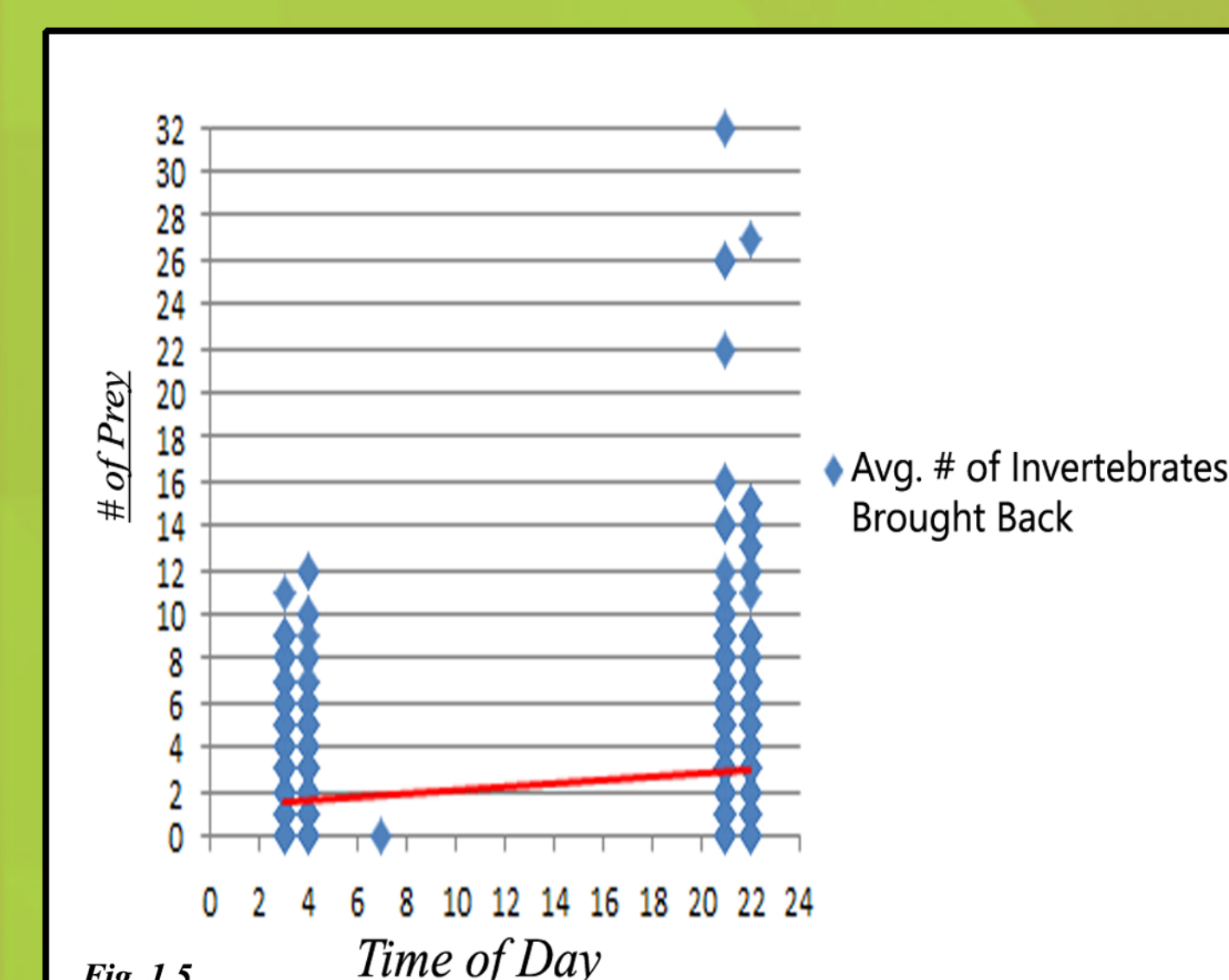
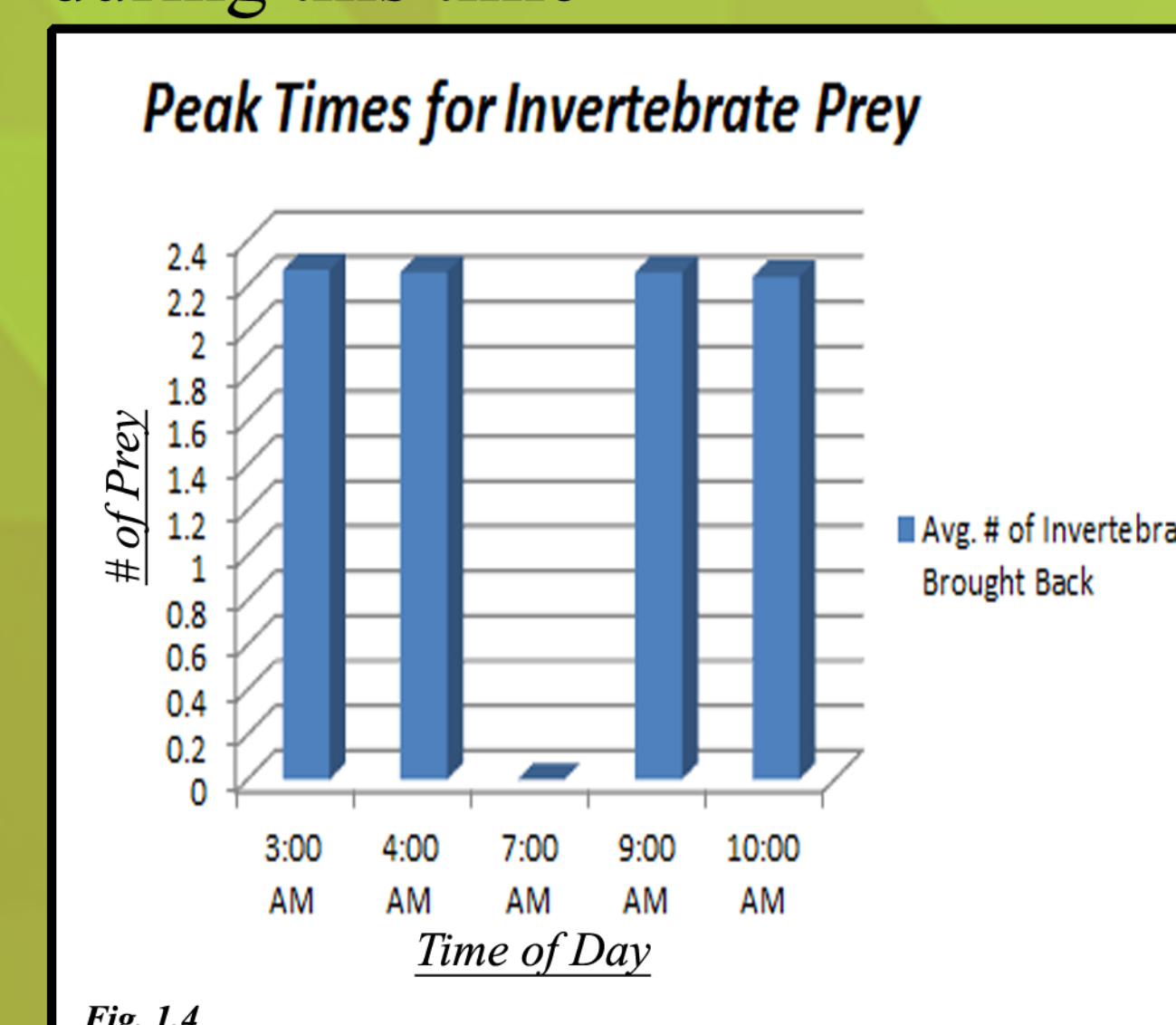
- Despite suggestive data for links between lunar phases and Burrowing Owl feeding rates, no conclusive evidence was found
- *fig. 1.0* and *1.1* show that there is no statistical correlation between lunar illumination/visibility and the the feeding behaviour of Burrowing Owls



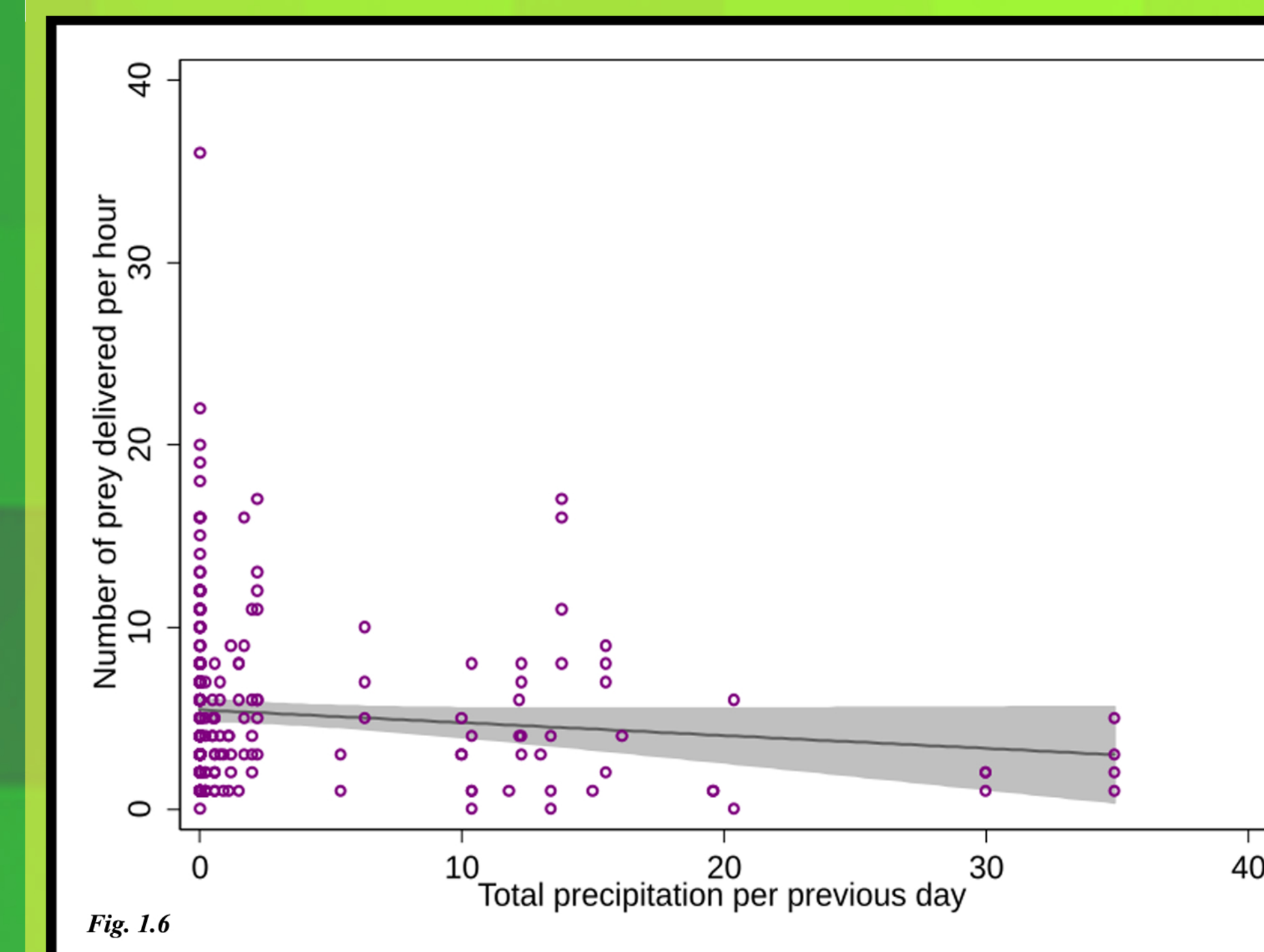
- It was discovered that the time of day, as well as the amount of precipitation the day before, heavily influenced the amount and type of prey brought back



- *Fig. 1.2* and *1.3*: Most mammals are caught at 9 or 10 PM, being most active during this time



- *Fig. 1.4* and *1.5*: Most invertebrates are caught during the day, when they are easily visible



- *Fig. 1.6*: More prey seems to be caught on days after little to no precipitation

## Discussion

- The differences in feeding rates are not directly related to lunar phases
- Other factors that may have influenced the feeding behaviour of Burrowing Owls include the vegetative qualities of the nest environments, as well as anthropological (human) activities coinciding with the various lunar phases (e.g. a crop harvest during a full moon would allow field-dwelling owls to catch more prey with less effort, as they would have less vegetation to dive through)
- The variable aspects of life as a Burrowing Owl (high mortality, low nesting success rates etc.) do not pair well with less prey being caught. The ability and likelihood of catching prey, therefore, remains a contributing factor to their 22% annual decline, along with many others that prevent this species from having the relative stability it did around 20 years ago.<sup>6</sup>



## The Moon

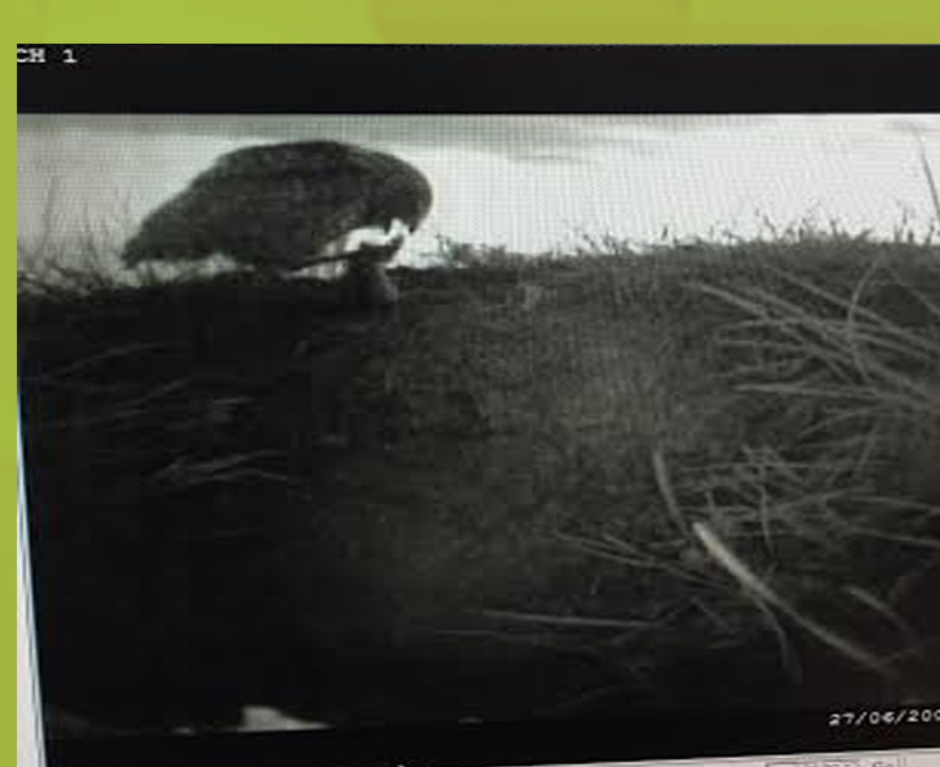
- The behaviors of many species are affected by the phases of the moon
- For example, coyotes exhibit the most group vocal behaviour when the moon is least visible<sup>4</sup>
- With humans, the lunar phases seem to influence the number of psychiatric emergency visits to hospitals<sup>5</sup>

## My Question

How does the lunar cycle affect Burrowing Owl foraging?

## Methodology

- Video analysis of Burrowing Owl feeding habits



## Citations

- <http://www.skburrowingowl.ca/about-owls/problems-facing-burrowing-owls>
- Desmond, Martha, Julie Eskridge, Kent M., 2000
- Sarah Lantz, Courtney Conway, 2009
- Bender, Darren, Bayne, Erin, Brigham, Mark, 1996
- Asian Journal Of Psychiatry [Asian J Psychiatry] 2011 Mar; Vol. 4 (1)
- [http://www.registrelap-sararegistry.gc.ca/species/speciesDetails\\_e.cfm?sid=20](http://www.registrelap-sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=20)

## Wonderful People

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