Naturalista sicil., S. IV, XLVI (2), 2022, pp. 139-146

DOI: https://doi.org/10.5281/zenodo.7562159

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OCCURRENCES OF THE SPHINGID MOTH *HYLES LIVORNICA* (ESPER, 1785) IN THE MALTESE ISLANDS AND A NOTE ON THE JANUARY 2021 ABNORMAL MIGRATION

SUMMARY

This note records the occurrence of *Hyles livornica* (Esper, 1785), a regular visitor to the Maltese Islands where it has been recorded in all months except for January, August and December. In January of 2021, following an abnormally warm spell, a large off-season migration took place where large numbers were recorded.

*Key words***:** Maltese Islands, *Hyles livornica*, occurrence, migration.

RIASSUNTO

Presenza della Sphingidae Hyles livornica *(Esper, 1785) nelle isole maltesi e una nota sulla migrazione del gennaio 2021.* Questa nota presenta un resoconto sulla presenza di *Hyles livornica* (Esper, 1785), visitatore abituale delle isole maltesi dove è stato segnalato in tutti i mesi tranne gennaio, agosto e dicembre. Nel gennaio del 2021, a seguito di un periodo anormalmente caldo, si è verificata una grande migrazione fuori stagione in cui sono stati registrati grandi numeri.

Parole chiave: Isole maltesi, *Hyles livornica*, presenza, migrazione.

Introduction

The Striped Hawkmoth *Hyles livornica* (Esper, 1785) is a species native to Europe's southernmost coastal areas and islands of the Mediterranean but disperses regularly further north. It is rare and irregular in central Europe.

It is mainly found in the tropics and subtropics of Africa and Asia.

In the Canaries, *Hyles livornica* occurs permanently along the eastern islands from Gran Canaria but is a regular immigrant to the west of the island.

In North Africa*, Hyles livornica* is mainly flying from the end of January to November, especially during February and March and again during May, and somewhat irregular during the summer months.Caterpillars can be found from February onwards and on rare occasions even earlier depending on rainfall.

Hyles livornica is first mentioned for the Maltese Islands by Gulia (1858). In his *Corso elementare di entomologia maltese* he mentions *Deilephila Livornica* (sic) as one of the two "red" hawkmoths known by the locals and remarks that this species is synonymous with *D. lineata* of authors. Fletcher (1904-05) noted this species only during the month of May as "not uncommon" at the Argotti Gardens. Valletta (1973) lists this species as an irregular migrant to the Maltese Islands, but when it does migrate, it arrives in large numbers, during the day as well as at night. Sammut (2000) listed it as a common migrant met with in April and May and again from late June to July.

On its way north, some individuals are seen in March, peaking in April and continues till July, although it is possible that the ones seen in June and July may have been locally hatched individuals.

Observations

From published records and material examined in public and private collections collected from 1964 up to 2020, *Hyles livornica* was recorded in every month except for January, August and December.

This species appears to be more common in Spring than in Autumn. From a total of 213 specimens collected between 1964 and 2020, the largest numbers were recorded from Spring to early Summer (March to July) peaking in the month of April, while a smaller migration takes place in Autumn (Fig 1). There were no records for the months of August and December with the Autumn migration occurring between September and November.

Unlike Spring, where high double figures have been recorded, Autumn numbers are quite low. It is possible that specimens recorded during the Summer and Autumn months are post-aestivation individuals, hatching after the first rains and in time when vegetation re-growth occurs. This is also been known to occur in *Hyles euphorbiae* (*pers. comm.*). (Fig 2).

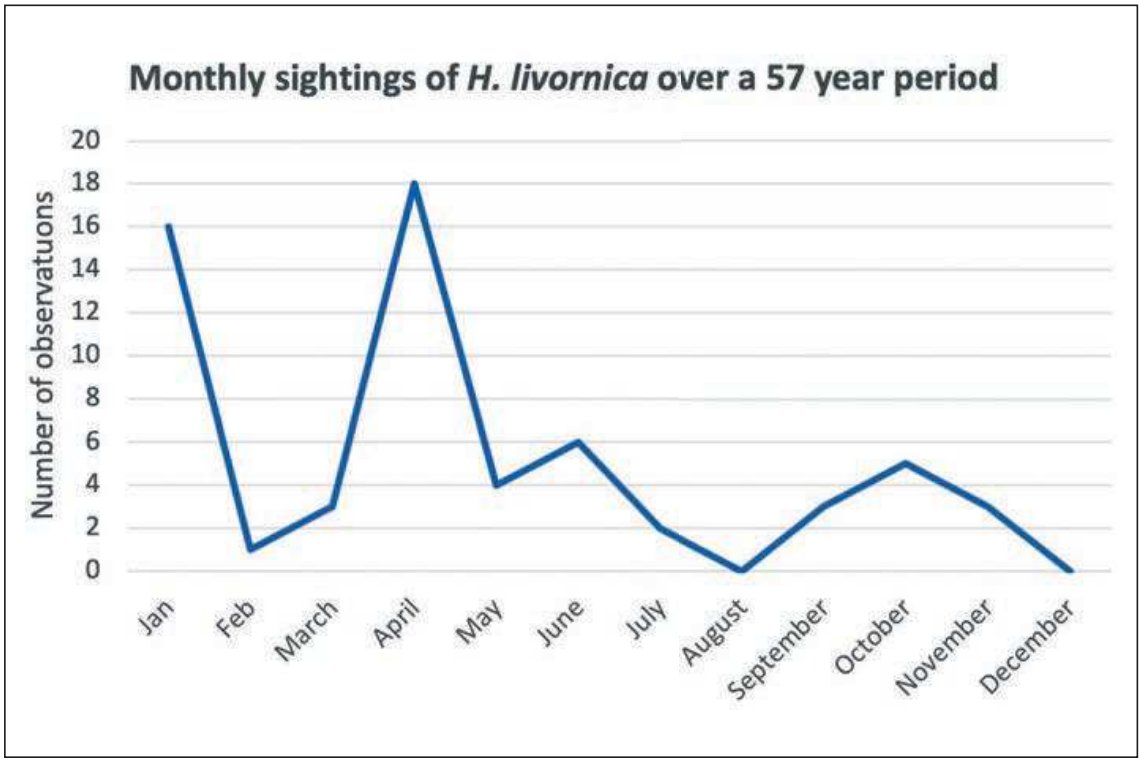

Fig. 1 — Monthly sightings over a 57-year period (1964-2021).

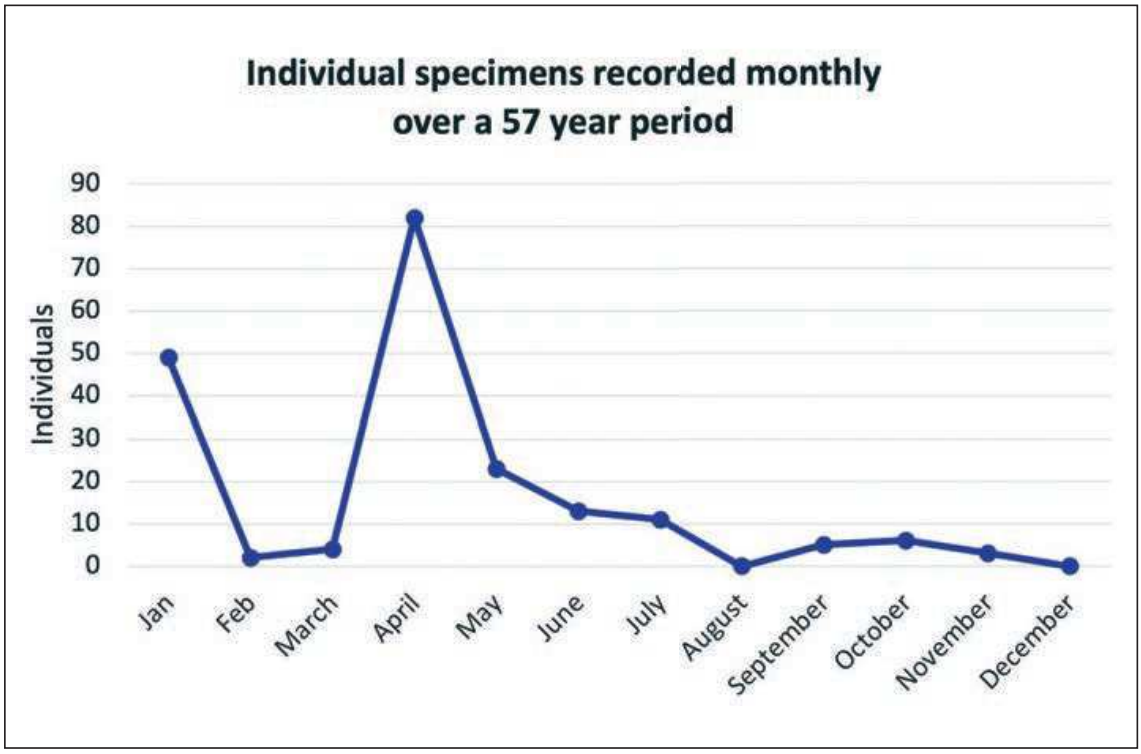

Fig. 2 — Number of individual specimens recorded per month over a period of 57 years (1964-2021). April is the month coinciding with the migration period.

Exceptional Numbers

The first two notable influxes of this species were reported by Valletta (1973), one on 8th April 1965 and another, apparently a larger one, a year later on 22nd February 1966 (Valletta, 1966). Valletta reports that "The streetlights along the Sliema front, attracted the moths and the pavements were littered with bodies". He also refers to a previous noteworthy migration that took place on 28th March 1952. Noteworthy migrations in the last two decades includes: on 1st and 2nd June 2003 (Zammit 2003); a good passage with more than 30 individuals attracted to one light trap in Rabat was recorded on 18 April 2006 (P.S.). Fifteen specimens housed at the Natural History Museum, labelled as collected at light on 4th May 2004 from the above-mentioned site in Rabat also indicates another good passage.

The January 2021 Migration

Prior to 2021 *Hyles livornica* has never been recorded in the Maltese Islands in the months of January, August and December. On the 9th of January 2021, the temperature peaked at 25.8ºC, the highest ever since 1923 (Malta Met Office data). Saturday's (9th) maximum air temperature was, in fact, significantly higher than the 30-year climate norm for the month of January, which stands at 15.6ºC. Several individuals were reported from various localities in Malta and Gozo with no less than ten newly arrived individuals seeking shelter from the strong winds inside a classroom at Pembroke, a karstic area located along the east coast of Malta. This warm spell persisted into Sunday 10th, with the minimum air temperature for the day reaching the 19.4ºC mark in the early hours of the morning, going on to set a new highest minimum temperature record for the month of January. A south-westerly wind coming from the Sahara contributed to Saturday's warm air temperature that continued to the following day where by Monday 11th January, the wind swerved back to North West and temperatures plummeted back to the monthly normal temperatures (Malta Met Office Data). It appears that a small number of individuals were also recorded along the east coast of Sicily at Pachino, Caltanissetta and Licata (A. Falci, G. Torre and S. Russotto, *pers. comm.*).

Is *Hyles livornica* resident in the Maltese Islands?

The species has been recorded in all months except for the month of August. The question if this species is resident or not arises. The favourite lar-

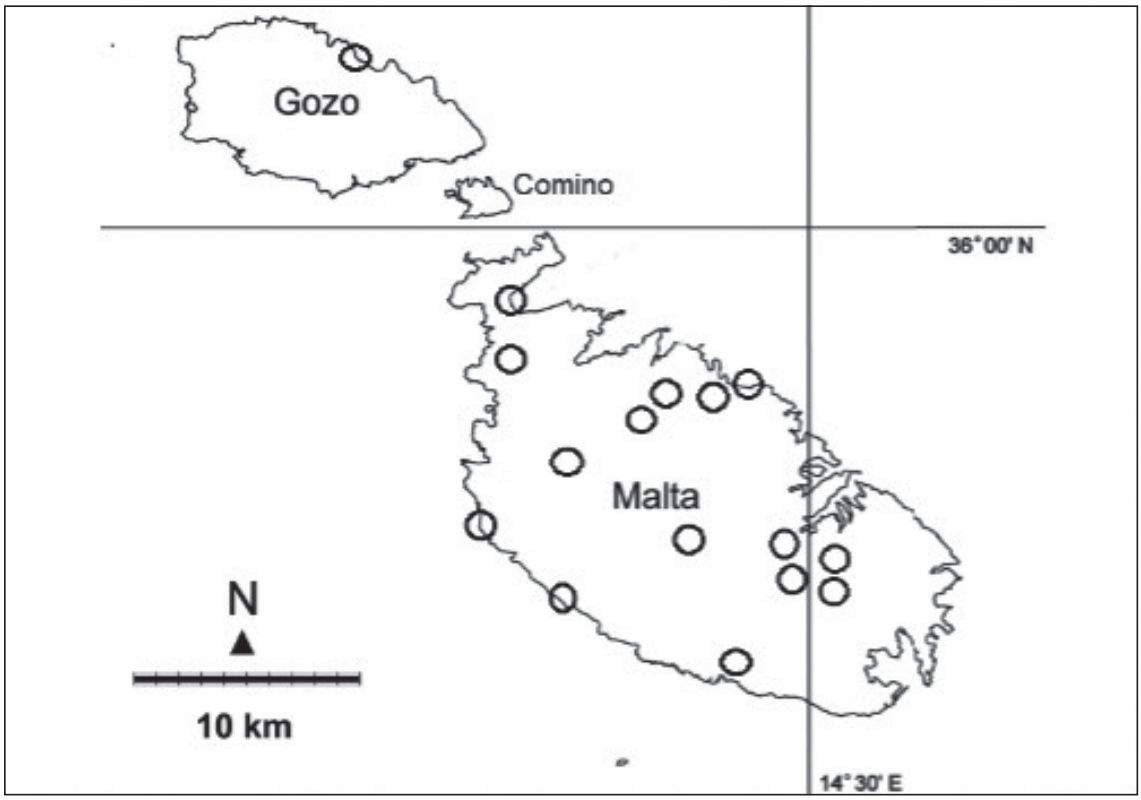

Fig. 3 — Locations from where *H. livornica* was reported in the January 2021 migration.

val foodplant, the vine is widespread, especially with the plantation of large areas of vineyards on Malta and Gozo in the last two decades. But with the species being polyphagous it is possible that it feeds also on other species such as *Antirrhinum* and *Rumex* which are both common and may serve as a substitute when vines are heavily sprayed with pesticides (*pers. comm.*).

A female captured in April 2021 laid eggs on the 19th April and the larvae hatched on the 27th, eight days later. They pupated after 21 days, on the 18th May and the adults emerged after 15 days, on the 3rd June. The entire cycle from egg to hatching lasted 45 days.

Migration or Wind Assisted?

Animal migration is normally a bi-annual occurrence with species heading north on the onset of spring to reach their breeding grounds, and a few months later, following the post-breeding period, head south to spend the winter months in more temperate climates. In some instances, for example in some bird species, most notable being the Common Crossbills *Loxia curvirostra* as well as several insect species, like the Painted Lady *Vanessa cardui*,

several species of moths as well as locusts, we find off-season migrations over a wide area away from their breeding grounds. This is normally triggered by a lack of food or sudden changes in weather conditions. The Maltese Islands, lying in the centre of the Mediterranean, 90 km south of Sicily and 354 km distant from North Africa, occasionally experiences such off-season events (CARUANA-GATTO, 1910; VALLETTA, 1972; CASSAR, 1990; SULTANA & SCHEMBRI, 1991; GALEA, 2002).

In April 1985, an influx of *H. livornica* in the westernmost part of the Mediterranean (Iberian Peninsula and west France) was reported by GIELEN (1988). This early influx/migration was triggered by strong winds and the high number of individuals in the country of origin, north-west Morocco. During an entomological visit to Morocco by the authors in late June-early July of 2006, treble figures of adult *H. livornica* were seen flying and feeding during daylight hours, possibly in preparation for the sea crossing on to Europe.

CONCLUSION

The authors recommend that local studies on the relationship between wind conditions and sudden appearances of moths, as well as other biota, should be carried out to identify the triggers to such mass movements in the off-season periods. These studies should have a holistic approach covering the wider part of the Mediterranean.

Acknowledgements - The authors greatly appreciate the help by the following individuals in submitting their sightings during the January 2021 migration: David Attard, Edward Bonavia, Matthias Budel, Denis Cachia, Alex Casha, Charles Coleiro, Amadeo Falci, Jake Farrugia, Ray Galea, L.K. Hodkin, Ben Metzger, Oriana Mizzi, Salvatore Russotto, Giancarlo Torre and Paul Vella.

REFERENCES

CARUANA GATTO A., 1910. Sulla Straordinaria Comparsa in Malta della "Loxia Curvirostra L." *Archivium Melitense*, 1(1): 15-17.

CASSAR L.F., 1990. Occurrences of swarming Locusts (Orthoptera: Acrididae) in the Maltese Islands during 1988. *The Central Mediterranean Naturalist*, 2(1): 22-23.

FLETCHER T.B., 1904-5. A Preliminary List of the Lepidoptera of Malta. *The Entomologist*, 37: 273-276, 315-319; 38: 18-20.

GALEA R., 2002. Irruption of Common Crossbill *Loxia curvirostra* during 1990. *Il-Merill*, 30: 34-35.

GIELEN P., 1988. De migratie van *Hyles livornica* Esper in april 1985. (Lepidoptera: Sphingidae). *Phegea*, 16(1): 1-9.

GULIA G., 1858. Corso elementare di Entomologia Maltese dato nel Palazzo di Sant'Antonio. Lezione quarta, Classe Sesta, pp.46-56. Malta.

SAMMUT P.M., 2000. Il-Lepidoptera - Kullana Kulturali 12. x + 245pp. 24pls. *Pubbl. Indipendenza*, Msida, Malta.

SULTANA J. & SCHEMBRI P.J., 1991. An Unusual Large Mixed Fall of Birds and Insects on Filfla. *Il-Merill*, 27: 13-15.

VALLETTA A., 1966. Unwelcome Visitors. *Times of Malta*, (3 iii 66): 5.

VALLETTA A., 1973. The Moths of the Maltese Islands. *Progress Press*, Malta, 120 pp.

ZAMMIT R., 2003. Large Migrations of Moths and Butterflies reach Malta. *The Times*, 23.vi.2003: 5.

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