Stoat *Mustela erminea* Linn., 1758

Occasionally, a stoat in ermine has been recorded in Essex, with the last record occurring in 2007. In February 2020, an animal, predominantly white, but with some brown patches on the head, was seen on several occasions on Wallasea Island.

References

DOBSON, J. (2001) The welcome return of the Polecat *Mustela putorius* to Essex. *Essex Naturalist* **18:** 66.

DOBSON, J. & TANSLEY, D. (2014) *Mammals of Essex.* Essex Field Club.

The arrival in Colchester of a new gall wasp on Holm Oak: *Plagiotrochus quercusilicis* (Hymenoptera: Cynipidae)

MARIA FREMLIN

25 Ireton Road, Colchester, Essex, CO3 3AT. Email: mariafremlin@gmail.com

On 15 May 2018, I found some red galls on the fresh leaves of the lower branches of some Holm Oaks *Quercus ilex* at the top of Sussex Road, TL983252, (Fig. 1a); they were the first sighting of the sexual generation galls of *Plagiotrochus quercusilicis* (Fabricius, 1798) (Hymenoptera: Cynipidae) in Colchester. Soon after that, I discovered that they were widespread on the Lexden area Holm Oaks, mostly on the epicormic shoots of mature trees; on a row of self-sown young trees by the side of Park Road; on one tree in Hilly Fields Nature Reserve; and on a Holm Oak hedge in Beverley Road, which was pruned soon afterwards, but more of that later. However, there were none on the Essex University campus or other trees further afield.

This was a very exciting find; I had been waiting for the arrival of these galls. They were first sighted in Britain at the Eden Project, Cornwall (Hancy & Hancy 2004), and seemed to be expanding far too rapidly, according to messages in the British Plant Galls Yahoo Group. In 2014 Keith Palmer reported them in Alexandra Park, Hastings, East Sussex. By May 2017 Koorosh McCormack reported them in London, but mentioned that records had arrived in 2012 and 2015 in the Fulham area. By 2018 they were sighted even further north of Colchester: in Suffolk by Jerry Bowdrey (Bowdrey 2018a, 2018b), and in Norwich by James Emerson, Facebook British Plant Galls group.

The life cycle of *Plagiotrochus* spp. consists of two phases: sexual and asexual/agamic, allegedly on the same hosts. *P. quercusilicis* attacks exclusively two evergreen circum-Mediterranean oaks: *Quercus coccifera* and *Q. ilex sensu lato* (Pujade-Villar & Ros-Farré 1998; Nieves-Aldrey 2001). The former, Kermes Oak, is very rare in Britain, but Holm Oaks were introduced here a good 400 years ago and have since become semi-naturalised (Hadfield 1957). In Colchester there are some majestic trees in the gardens along Lexden Road, which become a wonderful sight in late spring when the trees produce a new set of leaves and masses of golden catkins. During this relatively short period the tree's general aspect changes from a rather gloomy dark green to a beautiful yellowish-green. The sexual phase starts at about this time. Leaf galls appear as the pale new growth leaves unfurl (Redfern & Shirley 2011; Bowdrey 2018b). The galls are small red globules, showing on both sides of the leaf, rather waxy and have great shape variation: from just a single swelling to several coalesced smaller swellings, close to the leaf vein (Fig. 1a, c). Some galls have only a vestigial leaf border; others are on much smaller leaves than expected, suggesting that the gall could prevent leaf growth. They were all multi-chambered (Fig. 1b). This distinguished them from a similar Holm Oak gall: *P. australis* (Mayr), which have only one chamber (Redfern & Shirley 2011). The latter together with *P. coriaceus* (Mayr) are also recent introductions to Britain, but there are no records of these galls for this area yet. I saw no catkin galls, which seem to be rare in Holm Oaks (Nieves & Aldrey 2001). In this area the only other

Fig.1. *Plagiotrochus quercusilicis* leaf galls on *Quercus ilex* in Colchester– a. First sighting on fresh growth leaves, 15 May 2018. – b. Sectioned large globular gall displaying many chambers each occupied by a single larva; note the small leaf border, 23 May 2018. – c. Three freshly emerged wasps; note the galls are no longer bright red, 4 June 2018. – d. Galls on a *Q. ilex* hedge with a cunning resemblance to Holly *Ilex aquifolium*, 26 May 2019.

gall that I have noticed on Holm Oaks is the mite *Aceria ilicis* (Canestrini), which makes upper side bulges and corresponding depressions on the leaves (Redfern & Shirley 2011). Their bulges were present on fresh leaves as well, suggesting that the mites were also active at the same time of the year.

By early June, when the male catkins had dried up or fallen off, the galls had emergence holes already, and had started losing their bright red colour. To my great surprise, after downloading some pictures taken of the few galls that had escaped the pruning of that hedge, I noticed some tiny wasps on the galls; there was even a male waiting for a half emerged wasp, probably a female (Fig. 1c). The wasps are miniscule, < 2 mm, no wonder I missed them in the field. The maximum number of emergence holes on a single globule gall was 15; it measured 8.05 x 5.62 x 4.77 mm.

Surprisingly, I discovered some late galls in July in the vein of larger leaves; they were mostly green and some had a few emergence holes; later a few wasps emerged from some that I had collected. This suggests that this species may have a variable emergence date, as do many other Cynipids (Jerry Bowdrey pers. comm.).

The duration of the sexual generation of *P. quercusilicis* is comparatively short. After mating, the females lay eggs on fresh growth stems of the same host inducing galls, sometimes associated with cryptic swellings (Nieves-Aldrey 2001; Bowdrey 2018b; Bowdrey & Notton 2019). The agamic generation females eventually emerge from the stem galls and complete the life cycle by laying eggs in the of buds of the tree. However the duration of this generation is not known because it has not been possible to link it experimentally to the sexual generation in spite of many attempts (Judi Pujade-Villar pers. comm.). Unfortunately, I did not find any swollen stems,

with or without emergence holes, maybe because they are barely discernable on *Q. ilex*, unlike on the other host, *Q. coccifera* (Nieves-Aldrey 2001).

The fast expansion of the sexual generation galls has generated a lot of interest among cecidologists. During the same season, Bowdrey and Notton (2019) found galled stems in Suffolk and London on trees associated with them; they managed to rear from one stem one agamic female *P. quercusilicis* and from other stems the inquiline *Saphonecrus gallaepomiformis* (Fonscolombe), several individuals. This bivoltine inquiline is common from stem galls of the evergreen oaks: *Q. ilex*, *Q. coccifera* and *Q. suber* (Schwéger *et al.* 2015; Judi Pujjade-Villar pers. comm.). This is very interesting; it shows that yet another species new to Britain has come along with imported infected stock (Bowdrey & Notton 2019).

Another example is a new specialist parasitoid: *Pediobius rotundatus* (Fonscolombe), which has been reared from *P. quercusilicis* sexual generation leaf galls from Cornwall and London (Koorosh McCormack pers. comm.); it is very common in its native range (for example, Pujade-Villar & Ros-Farré 1998; Bellido & Pujade-Vilar 1999). Both kill *P. quercusilicis*, but in different ways. The parasitoid attacks their larvae and feeds on them. The inquiline competes for food with their larvae and as a result starves them.

On May 2019, the leaf galls were back in Colchester. In spite of their natural enemies and the drastic pruning, the Holm Oak hedge was festooned with lovely red galls (Fig. 1d). It just shows the power of dispersal of this species.

Acknowledgments

I am very grateful to Jerry Bowdrey, Willem Ellis, Koorosh McCormack and, in particular, Judi Pujade-Villar for interesting discussion, help with the literature and feedback on the manuscript.

References

BELLIDO, D. & PUJADE-VILLAR, J. (1999). Comparación de cadenas tróficas asociadas a agallas de cinípidos (Hym.: Cynipidae) en dos ambientes distintos. *Boletín de la Asociación española de Entomología* **23**: 265-275.

BOWDREY, J.P. (2018a) Gall Recorder's Report 2017-2019. *Essex Naturalist (New Series)* **35**: 83-85.

BOWDREY, J.P. (2018b) *Plagiotrochus quercusilicis* (Fabricius, 1798), a gall wasp (Hymenoptera: Cynipidae) on *Quercus ilex* (holm oak), new to Suffolk. *Transactions Suffolk Natural History Society* **54**: 29-31.

BOWDREY, J.P. & NOTTON, D.J. (2019) *Saphonecrus gallaepomiformis* (Hymenoptera: Cynipidae): a cynipid inquiline new to Britain. *British Journal of Entomology and Natural History* **32**: 147-153.

HADFIELD, M. (1957) *British Trees, A Guide for Everyman.* Dent & Sons Ltd, London.

HANCY, R. & HANCY, B. (2004) First British record of the cynipid *Plagiotrochus quercusilicis*. *Cecidology* **12**: 98.

NIEVES-ALDREY, J.L. (2001) *Fauna Ibérica, Vol. 16: Hymenoptera: Cynipidae.* Museo Nacional di Ciencias Naturales, Madrid.

PUJADE-VILLAR, J. & ROS-FARRÉ, P. (1998) Inquilinos y parásitos de las agallas del género *Plagiotrochus* Mayr colectadas en el Nordeste de la Península Ibérica. *Boletín de la Asociación Española de Entomología* **22**: 115–143.

REDFERN, M. & SHIRLEY, P. (2011) *British Plant Galls.* Field Studies Council, Preston Montford, Shewrsbury, second edition, ISBN 978 1 85153 284 1.

SCHWÉGER, S., MELIKA, G., TANG, C-T., YANG, M-M., STONE, G.N., NICHOLLS, J.A., SINCLAIR, F., HEARN, J., BOZSÓ M. & PÉNZES Z. (2015) New species of cynipid inquilines of the genus *Saphonecrus* (Hymenoptera: Cynipidae: Synergini) from the Eastern Palaearctic, with a re-appraisal of known species world-wide. *Zootaxa* **4054**: 001-084.