

A SURVEY OF IRISH THRIPS (INSECTA: THYSANOPTERA) IN THE COLLECTIONS OF THE NATURAL HISTORY MUSEUM, LONDON, WITH THREE ADDITIONS TO THE IRISH CHECKLIST

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Abstract

The Natural History Museum, London, is confirmed as the largest single depository of slide-mounted, identified, Irish thrips material, containing the great majority of extant specimens. The collection holds material for thirty of the thirty-six species on the current Irish checklist. In addition, examination of the collection revealed specimens of a further three species to be added to the checklist, all collected by Brian Pitkin in the Republic of Ireland in 1968 and 1969: *Aeolothrips ericae* Bagnall (Aeolothripidae; a new familial addition to the Irish fauna), *Odontothrips cytisi* Morison and *O. ignobilis* Bagnall (Thripidae). The absence of voucher specimens in the collection strongly suggests that the current listing of three species for Northern Ireland (*Limothrips denticornis* Haliday, *Odontothrips ulicis* (Haliday) and *Hoplothrips pedicularius* (Haliday)) and two species for the Republic of Ireland (*Aptinothrips stylifer* Trybom and *Thrips discolor* Haliday) is not supported by extant material. Two species are included on the Irish checklist based solely on the finding of a single second-instar larva: *Belothrips acuminatus* Haliday and *Phlaeothrips annulipes* Reuter. Morphometric analysis of the material of *Thrips physapus* L. and *T. trehernei* Priesner indicate all the adult specimens to be confirmed or likely *T. physapus*. This leaves a single second-instar larva collected by Guy Morison in Belfast in 1939 as the only specimen still attributed to *T. trehernei*, an identification that cannot be confirmed or refuted.

Key words: Thysanoptera, thrips, Ireland, Natural History Museum, London, slide-mounted collections, survey, additions, Irish checklist, *Aeolothrips ericae* Bagnall, *Odontothrips cytisi* Morison, *Odontothrips ignobilis* Bagnall.

Introduction

The Irish Thysanoptera fauna is greatly under-recorded, with very little collecting activity ever having been undertaken on the island of Ireland by specialist thysanopterists. The most recently produced checklist of Irish thrips (Mound, Collins and Hamilton, 2018) was primarily a taxonomically corrected version of the list produced by O'Connor (2008) which was, in turn,

based on records compiled from the published literature. It included 36 species in 19 genera from two families, with an additional species recorded as a non-established record of an incursion. This compares with the last published checklist for Great Britain (Collins, 2010) which comprised 157 species in 56 genera from four families, with a further 19 species recorded as non-established incursions. Two species have subsequently been added to the British list (Collins, 2019).

O'Connor's list was annotated with published references to support each species' inclusion. Several of these papers described wider studies of arthropods from which any thrips collected were sent to specialists in Britain for species determination with the species names subsequently listed in the resulting publication: Healy (1975), thus, investigated the invertebrate fauna of a salt marsh on North Bull Island, Dublin, whilst Curry (1976) surveyed the arthropods associated with six grass and weed species on grassland at Glasnevin near Dublin. Similarly, the British dipterist Ken Smith collected thrips at two sites near Dublin and one in County Wicklow during a working visit to Dublin (Smith, 1951). A few records date back to reports of a single species as new to Ireland from the early part of the twentieth century (e.g. Bagnall, 1909; Sherrard, 1911); Richard Bagnall's finding of *Bolothrips dentipes* (Reuter) at Portmarnock salt marsh near Dublin appears to be the only confirmed case of a species of thrips being recorded from Ireland before it was recognised as being present in Great Britain. Most of the given references, however, refer either to papers by Guy Morison or to the Royal Entomological Society Handbook on Thysanoptera (Mound *et al.*, 1976). When these were consulted, the original reference was generally found to be limited to a county, or even country, name, within a list of locations across the British Isles. So, for example, county records cited by Mound *et al.* (1976), were largely based on specimens in the collections of the Natural History Museum, London (NHM), but no other details were provided. Consequently, published information on the Irish thrips fauna is both fragmentary and superficial. It precludes any real analysis.

There are only 10 slides of thrips in the collections of the National Museum of Ireland, Natural History, Dublin (NMI), though this includes lectotypes designated for both *Aptinothrips rufus* Haliday and *Sericothrips staphylinus* Haliday. In addition, there are approximately 14 jars containing fluid-preserved specimens, though the contents of entire jars remain unidentified (O'Hanlon, personal communication). There is also a box of Alexander Haliday's card mounted specimens which were examined by the thysanopterist Laurence Mound along with some other miscellaneous card mounted specimens in the general collection. The difficulties associated with Haliday's collection, including assigning positive provenance to specimens, are detailed by O'Connor and Nash (1982). None of Haliday's specimens are slide-mounted or fully-labelled in the modern manner.

As a result, an investigation of the Irish Thysanoptera material held in the collections of the

NHM was carried out as this was considered the likely depository for most extant slide-mounted, identified, Irish material. The work was intended to provide a baseline of data to support future work on the Irish thrips fauna planned by the author. The NHM collections were searched for Irish specimens during four visits, in 2019 and 2022-2023, and was made both easier and more extensive as a result of recent sorting and cataloguing of the hitherto unorganised “Bagnall and Morison Supplementary Collection” to bring it into line with the main thrips collection. Not all specimens were examined under a microscope, but if deemed necessary for a given species (e.g., to confirm Irish status, or Northern Irish or Republic of Ireland status, or to check specific, difficult or otherwise possibly contentious, identifications), specimens were examined under a GXM-L2800 high-power microscope at magnifications up to 400X. Measurements were made using a GXCAM HiChrome-Met camera (mounted on the microscope) and its integrated software. Species determinations were made using keys by zur Strassen (2003) and Mound, Collins and Hastings (2018).

The Irish thrips in the collections of the NHM proved to be mostly derived from three sources: five (possibly four) visits to Northern Ireland made by Guy Morison to Northern Ireland between 1928 and 1958; two visits to the west and south of the Republic made by Brian Pitkin in 1968 and 1969; identifications made by the then Commonwealth Institute of Entomology (CIE) in London in 1973 from material forwarded by University College, Dublin, that had been collected in 1971-1972 during Curry’s survey work on the grassland at Glasnevin. Curry’s thrips appear to be the most recently collected from the wild in Ireland; the plant health authorities from both sides of the border will have subsequently recorded thrips from horticultural and other crop production sites, including the two invasive non-native glasshouse pest species introduced since 1987, *Echinothrips americanus* Morgan and *Frankliniella occidentalis* (Pergande).

Guy Morison (1898-1978) was the leading British thysanopterist of the middle part of the twentieth century. He donated over 20,000 microscope slides of British and Northern Irish thrips to the NHM which, together with considerable material acquired earlier from Richard Bagnall (1889-1962) in 1932 (with a few subsequent additions), forms the core of the museum’s collection of British thrips. Throughout his professional career Morison was based at the North of Scotland College of Agriculture, Aberdeen, as an advisory entomologist, and analysis of his Northern Irish thrips (largely consisting of common polyphagous species collected from Belfast or adjacent counties) suggests that it was likely collected opportunistically during official visits connected with his work. His material dates to five clusters: 30 July -2 August 1928; 27 June 1939; 26-28 July 1939; 7-10 May 1948; 24 July 1958.

Brian Pitkin (1945-2021) is primarily remembered as a dipterist at the NHM, but he initially joined the museum in 1965 as technical assistant to Laurence Mound and for over a decade he

collected, studied, and published on Thysanoptera from both Britain and overseas. His Irish material was collected from counties in the south and (to a lesser extent) the west of the Republic, and dates to two clusters: 12-23 May 1968 and 13-24 August 1969. Irish county records for a number of species that resulted from these two visits are included in the Royal Entomological Society Handbook, of which Pitkin was a co-author. And yet, the Handbook did not record Irish localities for three species collected by Pitkin, and currently in the NHM collection, that had not previously been recorded from Ireland (or indeed subsequently). As a result, three species (and a new family) are added to the Irish checklist in this paper.

Irish Thysanoptera specimens in the collections of the NHM

Two of the species here added to the Irish checklist, *Aeolothrips ericae* Bagnall and *Odontothrips ignobilis* Bagnall, were both collected from “dwarf furze” by Brian Pitkin at Rosscarbery Bay, County Cork (spelt “Roscaberry” on the slides), on 21 August 1969 (BRP 161). Dwarf furze is a common name that has been used for several species of gorse and in the British Isles may refer to either *Ulex gallii* Planch. or *U. minor* Roth, both hosts of *O. ignobilis*. Botanical atlases (e.g. Preston, Pearman and Dines, 2002) indicate that the plant was almost certainly western gorse, *U. gallii*. Other localities which may have been misspelt are given in italics.

AEOLOTHRIPIDAE – New addition to Irish checklist

***Aeolothrips ericae* Bagnall, 1920 – New addition to Irish checklist [1 sample; 2 adults]**

The first member of the Aeolothripidae to be recorded from Ireland, *Aeolothrips ericae* is presumed to be a facultative predator, feeding on a mixed diet of pollen and the larvae of other thrips. It is restricted to the flowers of heather species and those of various Fabaceae such as *Ulex*, but these are all widespread in Ireland. The thrips was recently recorded from the west Welsh coast for the first time and it was suggested that the absence of records from the western parts of the British Isles is a likely case of recording deficit (Collins, 2021). The same potentially applies to other species of *Aeolothrips* that are common in Britain; collectively they are characterised by a relatively large size, conspicuous wing patterning, and active behaviour on a beating tray, running rather than walking.

REPUBLIC OF IRELAND: 2♀♀, dwarf furze, Rosscarbery Bay, Co. Cork, 21.viii.1969 (BRP 161).

THRIPIDAE-SERICOTHRIPINAE

***Sericothrips staphylinus* Haliday, 1836 [2 samples; 24 adults]**

The location of “Leencon” is unknown to the author. Pitkin was in County Mayo on the 12th

May 1968 and in County Kerry on the 17th May.

REPUBLIC OF IRELAND: 8♀♀, 3♂♂, *Ulex*, nr *Leencon*, 13.v.1968 (BRP 96); 10♀♀, 3♂♂, dwarf furze, Rosscarbery Bay, Co. Cork, 21.viii.1969 (BRP 161).

THRIPIDAE-THRIPINAE

Anaphothrips obscurus (Müller, 1776) [4 samples; 27 adults, 15 larvae]

NORTHERN IRELAND: ♀ macr., oats, Belfast, 31.vii.1928 (GDM); 4♀♀ macr., 2♀♀ micr., 11L₂, *Agrostis alba*, Belfast, 26.vii.1939 (GDM); 2♀♀ macr., 4♀♀ micr., 4L₂, grass, Hillsborough, 27.vii.1939 (GDM).

REPUBLIC OF IRELAND: 4♀♀ macr., 10♀♀ micr., *Dactylis*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

Aptinothrips rufus Haliday, 1836 [5 samples; 91 adults, 14 larvae]

NORTHERN IRELAND: 78♀♀, grass, Belfast, 30.vii-02.viii.1928 (GDM); 9♀♀, 1♂, 5L₁ 9L₂, *Agrostis alba*, Belfast, 26.vii.1939 (GDM).

REPUBLIC OF IRELAND: ♀, gorse, 2ml E of Kenmare, Kerry, 18.viii.1969 (BRP 155); ♀, dwarf furze, Rosscarbery Bay, Co. Cork, 21.viii.1969 (BRP 161); ♀, *Vicia cracca*, nr Clonakilty, Co. Cork, 22.viii.1969 (BRP 166).

Aptinothrips styliifer Trybom, 1894 [1 sample; 4 adults]

This apterous grass species, widely recorded from Great Britain, was collected at North Bull Island, Dublin, by Healy (1975). However, with the specimens, identified by the mid twentieth century English thysanopterist Ernest Speyer, not at the NHM, their absence leaves the status of the species in the Republic of Ireland unsupported by a known, extant, voucher specimen.

NORTHERN IRELAND: 4♀♀, grass, Belfast, 30.vii-02.viii.1928 (GDM).

Baliothrips dispar (Haliday, 1836) [7 samples; 19 adults, 6 larvae, 4 pupae]

NORTHERN IRELAND: ♀, grass, Belfast, 30.vii.1928 (GDM); 3♀♀, ♂, 2L₁, 4L₂, 1PP, 3P, *Agrostis*, Belfast, 26.vii.1939 (GDM); 4♀♀, ♂, grass, Hillsborough, Co. Down, 27.vii.1939 (GDM); ♀ hemimacr., grass, Portadown, Co. Armagh, 07.v.1948 (GDM).

REPUBLIC OF IRELAND: 6♀♀, grass, nr Limerick, 15.v.1968 (BRP 98); ♀ hemimacr., *Dactylis*, Glasnevin, Dublin, det. 1973 (CIE A. 6304); ♂, *Lolium*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

Belothrips acuminatus Haliday, 1836 [1 sample; 1 larva] (Plate 1)

A single second-instar larva collected by Morison in Northern Ireland in 1958 is the only

record of this species from the island of Ireland. Elsewhere in the British Isles, it is known only from northern Scotland, almost entirely as a result of Morison's own collecting activity, despite the availability of suitable hosts across the archipelago. The specimen, with orange-red bands ("crimson" in Morison's description), a single pair of pronotal posteroangular setae, and a terminal pair of upturned hooks, matches the description of the second-instar larva provided by Morison himself (1969). The species is found on leaves and flowers of various species of *Galium*, but is not the only thrips species in the British Isles that is found on *Galium verum*; and, the second-instar larva of *Rubiothrips silvarum* (Priesner), a species found in southern England, also has a terminal pair of upturned hooks. However, its body is described by Vierbergen, Kucharczyk and Kirk (2010) as yellow (as per specimens at the NHM) to pale rose. Unfortunately, *Belothrips acuminatus* is a species that is not included in either the key or descriptions provided by this publication.

NORTHERN IRELAND: 1L₂, *Galium verum*, Bushmills, Co. Antrim, 24.vii.1958 (GDM).

***Ceratothrips ericae* (Haliday, 1836)** [5 samples; 24 adults]

NORTHERN IRELAND: 15♀♀, ♂, *Erica cinerea*, Belfast, 30.vii.1928 (GDM); ♂, grass, Belfast, 30.vii-02.viii.1928 (GDM).

REPUBLIC OF IRELAND: ♀, Nephin Mountains, Co. Mayo, 25.viii.1944 (det. DWC)*; 5♀♀, *Erica* sp., 2ml E of Kenmare, Kerry, 18.viii.1969 (BRP 154); ♀, gorse, 2ml E of Kenmare, Kerry, 18.viii.1969 (BRP 155).

*The slide label, an image of which is visible online on the Natural History Museum Data Portal (<<https://data.nhm.ac.uk/>> specimen number NHMUK014779738), was originally annotated (in pencil) as "*Taeniothrips*", but has the later addition (in darker pencil) of "? *latus* Bg.", made by Speyer. Identification of the female as *Ceratothrips ericae* was made by the current author. There is no Irish specimen of *Mycterothrips latus* (Bagnall) at the NHM, and the species remains unknown from Ireland.

***Chirothrips manicatus* (Haliday, 1836)** [3 samples; 4 adults]

NORTHERN IRELAND: 2♀♀, grass, Portadown, Co. Armagh, 07.v.1948 (GDM).

REPUBLIC OF IRELAND: ♀, *Pinus sylvestris*, Kenarl [Mound *et al.* (1976) listed Kerry in their county location list for the species; also, see *Oxythrips ajugae* below], 18.v.1968, det. E. R. Speyer (BRP 105); ♀, *Dactylis*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

***Limothrips cerealium* Haliday, 1836** [6 samples; 40 adults, 7 larvae, 7 pupae]

NORTHERN IRELAND: 8♂♂, *Avena sativa*, Belfast, 30.vii.1928 (GDM); 4♀♀, 24♂♂, 5PP, 2P, *Avena sativa*, Belfast, 01.viii.1928 (GDM); 1L₁, 6L₂, *Avena sativa*, Stormont, Belfast,

26.vii.1939 (GDM).

REPUBLIC OF IRELAND: ♀, gorse, nr Clonakilty, Cork, 21.viii.1969 (BRP 165); ♀, *Armeria maritima* flowers, Kilmore Quay, Wexford, 24.viii.1969 (BRP 171); 2♀♀, *Lolium*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

***Limothrips denticornis* Haliday, 1836** [3 samples; 3 adults]

The absence of any material from Northern Ireland leaves the status of the species there unsupported by a known, extant, voucher specimen. However, this grass thrips is common and widespread across the British Isles and very unlikely to be absent from Northern Ireland.

REPUBLIC OF IRELAND: ♀, *Prunus spinosa*, nr Clonakilty, Co. Cork, 21.viii.1969 (BRP 164); ♀, *Armeria maritima* flowers, Kilmore Quay, Co. Wexford, 24.viii.1969 (BRP 171); ♀, *Dactylis*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

***Odontothrips cytisi* Morison, 1928** – New addition to Irish checklist [1 sample, 2 adults] (Plates 2-3)

Adult females of *Odontothrips cytisi*, a florivore specialist of broom, are morphologically very similar to those of *O. ulicis*, making the two very difficult to distinguish. Indeed, the *Thrips of the British Isles* website does not attempt to separate the two leaving practical identification to a combination of host and the more distinct males (Mound, Collins and Hastings, 2018), though the text suggests that the number of setae on the forewing second vein in the female is usually above 20 in *O. ulicis* and usually below that number in *O. cytisi*. Continental European authors have attempted to separate the females, suggesting diagnostic characters which, when used, prove indicative of trends but not wholly robust. In the Killarney specimens, the S₁ and S₂ setae on tergites VI and VII are roughly subequal, consistent with *O. ulicis* according to zur Strassen (2003), whilst the lengths of the hind tibiae (223-241 µm) lie within the overlap of the ranges for the two species provided by Priesner (1964). In contrast, however, the tibial claws are noticeably smaller than those of British *O. ulicis* specimens against which they were compared and comparable to Scottish specimens of *O. cytisi*, each of the four forewing second veins bear 15 setae, and the length of antennal segment VI is 61-64 µm, all indicative of *O. cytisi* (Morison, 1928; Priesner, 1964; Mound, Collins and Hamilton, 2018). Furthermore, consideration of these characters shows the Killarney specimens to be clearly different to Pitkin's Roscommon specimens of *O. ulicis* collected on gorse just four days earlier. Pitkin identified both Killarney specimens as *O. cytisi*, and given that they were collected from broom that judgement, on balance, holds in the view of the present author, though collection of males would conclusively confirm the identification. The finding produces a highly disjunct distribution for *O. cytisi* across the British Isles with findings restricted to northern Scotland and

south west Ireland.

REPUBLIC OF IRELAND: 2♀♀, *Cytisus scoparius*, Killarney, Co. Kerry, 16.v.1968 (BRP 101).

***Odontothrips ignobilis* Bagnall, 1919 – New addition to Irish checklist** [1 sample, 7 adults]

Odontothrips phaleratus is a phytophagous florivore specialist of *Ulex gallii* and *U. minor*, both species that flower in mid and late summer. In Britain, the species is commonly collected wherever its hosts are present, so a wider distribution across southern Ireland mirroring the range of western gorse should be expected.

REPUBLIC OF IRELAND: 6♀♀, ♂, dwarf furze, Rosscarbery Bay, Co. Cork, 21.viii.1969 (BRP 161).

***Odontothrips phaleratus* (Haliday, 1836)** [2 samples; 3 adults, 1 larva]

NORTHERN IRELAND: ♀, 2♂♂, *Lathyrus pratensis*, Belfast, 30.vii.1928 (GDM); 1L₂, grass, Belfast, 30.vii-02.viii.1928 (GDM).

***Odontothrips ulicis* (Haliday, 1836)** [1 sample; 2 adults] (Plates 2-3)

In contrast to *Odontothrips ignobilis*, *O. ulicis* is a specialist of common gorse, *Ulex europaeus* L., which can safely be assumed to be the host for these two adult females, particularly given the spring collection date. The slide label gives the collection information as detailed immediately below. However, Ballymoe is just across the county border from Roscommon, and the county location is listed as Galway by Mound *et al.* (1976). There is no material of *O. ulicis* from Northern Ireland at the NHM. Mound *et al.* (1976) included Down in their county location list for the species and this was the basis for its inclusion as a Northern Irish species by O'Connor (2008). I have been unable to find any mention of any such finding elsewhere in the literature; Morison does not reference Northern Ireland in any of his published references to the species. Thus, the presence of the species north of the border is unsupported by any known voucher specimen, though its host plant is widespread there.

REPUBLIC OF IRELAND: 2♀♀, *Ulex* sp., Roscommon, nr Ballymoe, 12.v.1968 (BRP 92).

***Oxythrips ajugae* Uzel, 1895** [2 samples; 2 adults]

“Kenarl” may be a mis-transcription on the slide label by Speyer who made the identification. The location is thus unknown to the author but Mound *et al.* (1976) listed county records for Galway and Kerry (also, see *Chirothrips manicatus* above). The Pontoon specimen was initially identified as *Oxythrips ulmifoliorum*, but later corrected to *O. ajugae* (confirmed by the author).

REPUBLIC OF IRELAND: ♀, sedge, Pontoon, Co. Mayo, Ireland, 12.v.1968 (BRP 93); ♀,

Pinus sylvestris, Kenarl, 18.v.1968, det. E. R. Speyer (BRP 105).

***Oxythrips halidayi* Bagnall, 1924** [2 samples; 5 adults]

Oxythrips halidayi is one of three morphologically very similar species (together with *O. quercicola* Bagnall and *O. ulmifoliorum* (Haliday)) that are morphologically very similar, and Mound, Collins and Hastings (2018) expressed doubt as to whether there was sufficient biological evidence to support three species. However, wing reduction is reported only for *O. halidayi*, and all the specimens below are both brown and either micropterous or hemimacropterous.

NORTHERN IRELAND: 3♀♀ micr., ♀ hemimacr., *Fraxinus excelsior*, Co. Antrim, 10.v.1948 (GDM).

REPUBLIC OF IRELAND: ♀ hemimacr., ash, nr Sneem, Co. Kerry, 17.v.1968 (BRP 104).

***Oxythrips ulmifoliorum* (Haliday, 1836)** [1 sample; 1 adult]

The slide of the Glasnevin female was originally labelled “*Oxythrips*”, with “*Oxy. ulmifoliorum*” added in pencil. The thrips is pale brown, with antennal segment I yellowish-brown and segment II darker than either I or III; antennal segments IV and V are subtly, but clearly paler in the basal half; ocellar setae pair III is shorter than the distance between the posterior ocellae. This makes the specimen consistent with zur Strassen’s concept of *ulmifoliorum* (zur Strassen, 2003). The slide of the Northern Irish male was similarly originally marked “*Oxythrips*” in black ink by Morison, but he subsequently added “*ulmifoliorum*” in blue ink. The specimen is generally yellow with some brown mottling; antennal segments I to II are pale; segments IV and V are paler in the basal half; ocellar setae III are short, almost minute, the likely main reason why Morison applied the name *ulmifoliorum* to the specimen. Notably, neither specimen was taken from a host tree.

NORTHERN IRELAND: ♂, herbage, Stormont, Belfast, 26.vii.1939 (GDM).

REPUBLIC OF IRELAND: ♀, *Urtica*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

***Taeniothrips picipes* (Zetterstedt, 1828)** [2 samples; 10 adults]

The location of “Kichane” is unknown to the author; the name is clearly written on each slide label with no county name attached. Mound *et al.* (1976) listed a county record for Kerry.

NORTHERN IRELAND: 3♀♀, *Teucrium scorodonia*, Rostrevor, Co. Down, 28.vii.1939 (GDM).

REPUBLIC OF IRELAND: 7♀♀, *Euphorbia* flowers, nr Kichane, 23.v.1968 (BRP 120).

***Thrips atratus* Haliday, 1836** [13 samples; 50 adults, 2 larvae]

NORTHERN IRELAND: ♀, ♂, *Rubus fruticosus*, Belfast, 01.viii.1928 (GDM); 6♀♀, *Campanula* sp., Belfast, 26.vii.1939 (GDM); 2♂♂, 2L₂, *Dianthus* sp., Belfast, 26.vii.1939 (GDM); 2♀♀, 2♂♂, *Hieracium* sp., Stormont, Belfast, 26.vii.1939 (GDM); 2♀♀, 2♂♂, *Leucanthemum vulgare*, Stormont, Belfast, 26.vii.1939 (GDM); ♀, ♂, *Linum usitatissimum*, Stewartstown, Co. Tyrone, viii.1941 (R. Chamberlain, det. GDM).

REPUBLIC OF IRELAND: 4♀♀, *Lythrum salicaria*, nr Wexford, Co. Wexford, 13.viii.1969 (BRP 150); 2♀♀, *Salix*, Youghal, Wexford, Co. Wexford, 14.viii.1969 (BRP 152); ♀, *Vicia cracca*, 2ml S of Bantry, Co. Cork, 20.viii.1969 (BRP 158); 6♀♀, *Centranthus ruber*, Timoleague, Co. Cork, 21.viii.1969 (BRP 162); ♀, bramble flowers, nr Clonakilty, Co. Cork, 21.viii.1969 (BRP 163); 7♀♀, 8♂♂, *Vicia cracca*, nr Clonakilty, Co. Cork, 22.viii.1969 (BRP 166); ♀, orange iris-type flowers, 5m N of Monkstown, Co. Cork, 23.viii.1969 (BRP 169).

***Thrips brevicornis* Priesner, 1920** [1 sample, 1 adult]

The single slide in the NHM collection apparently contains the only specimen to have been collected in Ireland.

NORTHERN IRELAND: ♀, *Cirsium arvense* and *Senecio vulgaris*, Stormont, Belfast, 26.vii.1939 (GDM).

***Thrips discolor* Haliday, 1836** [1 sample; 1 adult]

The only records of the species from the Republic of Ireland in the literature are the references to adults of both sexes in crucifer flowers at the botanical gardens at Glasnevin, Dublin, made by Haliday (1836; 1852). There are possibly no extant specimens to support the record. The species is a phytophagous specialist of creeping buttercup, *Ranunculus repens* L.

NORTHERN IRELAND: ♀ macr., *Linum usitatissimum*, Stormont, Belfast, 26.vii.1939 (GDM).

***Thrips flavus* Schrank, 1776** [19 samples; 62 adults]

NORTHERN IRELAND: ♂, *Rubus fruticosus* agg., Belfast, 01.viii.1928 (GDM); 2♀♀, *Cirsium arvense* and *Senecio vulgaris*, Stormont, Belfast, 26.vii.1939 (GDM); ♂, Asteraceae, Hillsborough, Co. Down, 27.vii.1939 (GDM); 4♂♂, *Sinapis arvensis*, Dromara, Co. Down, 27.vii.1939 (GDM); 2♀♀, ♂, *Ulex europaeus*, Newcastle, Co. Down, 28.vii.1939 (GDM).

REPUBLIC OF IRELAND: ♀, ♂, *Menyanthes*, Killarney, Co. Kerry, 16.v.1968 (BRP 100); ♀, *Brassica nigra*, nr Cork Airport, Co. Cork, 19.v.1968 (BRP 106); 3♀♀, *Euphorbia*, nr Kichane, 23.v.1968 (BRP 120); 4♀♀, ♂, *Lythrum salicaria*, nr Wexford, Co. Wexford, 13.viii.1969 (BRP 150); 5♀♀, *Erica* sp., 2 ml E of Kenmare, Co. Kerry, 18.viii.1969 (BRP 150).

154); 3♀♀, ♂, gorse, 2 ml E of Kenmare, Co. Kerry, 18.viii.1969 (BRP 155); ♀, ♂, *Senecio*, 3 ml S of Killarney, Co. Kerry, 19.viii.1969 (BRP 156); 2♀♀, 2♂♂, *Vicia cracca*, 2 ml S of Bantry, Co. Cork, 20.viii.1969 (BRP 158); ♂, *Trifolium pratense*, 2 ml S of Bantry, Co. Cork, 20.viii.1969 (BRP 159); 3♀♀, *Mentha aquatica*, 4 ml N of Skibbereen, Co. Cork, 20.viii.1969 (BRP 160); 4♀♀, dwarf furze, Rosscarbery Bay, Co. Cork, 21.viii.1969 (BRP 161); ♀, *Rubus fruticosus* agg., nr Clonakilty, Co. Cork, 21.viii.1969 (BRP 163); 4♀♀, 4♂♂, *Cytisus scoparius*, Kinsale, Co. Cork, 28.viii.1969 (BRP 167); 4♀♀, 4♂♂, orange iris-type flowers, 2.5 ml N of Monkstown, Co. Cork, 23.viii.1969 (BRP 169).

***Thrips fuscipennis* Haliday, 1836** [17 samples; 42 adults]

NORTHERN IRELAND: ♀, herbage, Hillsborough, Co. Down, 27.vii.1939 (GDM); ♀, *Linum usitatissimum*, Cookstown, Co. Tyrone, viii.1941 (R. Chamberlain; det. GDM); 5♀♀, 2♂♂, *Solanum tuberosum*, Benburb, Co. Tyrone, 19.vii.1961 (no further collection details: possibly det. E. R. Speyer).

REPUBLIC OF IRELAND: 3♀♀, *Prunus spinosa*, Killarney, Co. Kerry, 23.v.1968 (BRP 108); ♀, ♂, *Lythrum salicaria*, nr Wexford, Co. Wexford, 13.viii.1969 (BRP 150); 2♀♀, *Senecio*, 3 ml S of Killarney, Co. Kerry, 19.viii.1969 (BRP 156); ♀, ♂, *Vicia cracca*, 2 ml S of Bantry, Co. Cork, 20.viii.1969 (BRP 158); ♂, *Trifolium pratense*, 2 ml S of Bantry, Co. Cork, 20.viii.1969 (BRP 159); 10♀♀, *Mentha aquatica*, 4 ml N of Skibbereen, Co. Cork, 20.viii.1969 (BRP 160); ♂, *Centranthus ruber*, Timoleague, Co. Cork, 21.viii.1969 (BRP 162); 2♂♂, *Cytisus scoparius*, Kinsale, Co. Cork, 28.viii.1969 (BRP 167); ♂, *Trifolium pratense*, 2 ml N of Kinsale, Co. Cork, 23.viii.1969 (BRP 168); ♀, orange iris-type flowers, 2.5 ml N of Monkstown, Co. Cork, 23.viii.1969 (BRP 169); ♀, *Dactylus*, Glasnevin, Dublin, det. 1973 (CIE A. 6304); ♀, *Ranunculus*, Glasnevin, Dublin, det. 1973 (CIE A. 6304); 2♀♀, 2♂♂, *Rumex*, Glasnevin, Dublin, det. 1973 (CIE A. 6304); 2♀♀, *Senecio*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

***Thrips major* Uzel, 1895** [26 samples; 67 adults]

NORTHERN IRELAND: ♂, *Erica cinerea*, Belfast, 30.vii.1928 (GDM); ♀, *Rubus fruticosus* agg., Belfast, 1.viii.1928 (GDM); 2♂♂, Asteraceae, Belfast, 26.vii.1939 (GDM); ♀, *Digitalis purpurea*, Belfast, 26.vii.1939 (GDM); 2♀♀, herbage, Belfast, 26.vii.1939 (GDM); ♀, *Hieracium*, Stormont, Belfast, 26.vii.1939 (GDM); 8♀♀, ♂, *Rubus fruticosus* agg., Stormont, Belfast, 26.vii.1939 (GDM); 3♀♀, 3♂♂, herbage, Hillsborough, Co. Down, 27.vii.1939 (GDM); ♂, *Rubus fruticosus* agg., Rostrevor, Co. Down, 28.vii.1939 (GDM); ♀, *Linum usitatissimum*, Stewartstown, Co. Tyrone, viii.1941 (R. Chamberlain, det. GDM); ♀, herbage, Portadown, Co. Armagh, 7.v.1948 (GDM).

REPUBLIC OF IRELAND: ♂, on pasture land, Portumna, Co. Galway, vi.1963 (R. George; det. GDM); ♀, *Menyanthes*, Killarney, Co. Kerry, 16.v.1968 (BRP 100); ♀, *Brassica nigra*, nr Cork Airport, Co. Cork, 19.v.1968 (BRP 106); ♀, *Fumaria officinalis*, nr Cork Airport, Co. Cork, 19.v.1968 (BRP 107); 2♀♀, *Prunus spinosa*, Killarney, Co. Kerry, 23.v.1968 (BRP 108); 4♀♀, 5♂♂, *Lythrum salicaria*, nr Wexford, Co. Wexford, 13.viii.1969 (BRP 150); ♀ gorse, 2 ml E of Kenmare, Co. Kerry, 18.viii.1969 (BRP 155); 5♀♀, 4♂♂, *Senecio*, 3 ml S of Killarney, Co. Kerry, 19.viii.1969 (BRP 156); ♀, *Mentha aquatica*, 4 ml N of Skibbereen, Co. Cork, 20.viii.1969 (BRP 160); ♀, *Rubus fruticosus* agg., nr Clonakilty, Co. Cork, 21.viii.1969 (BRP 163); ♀, *Vicia cracca*, nr Clonakilty, Co. Cork, 22.viii.1969 (BRP 166); ♂, *Cytisus scoparius*, Kinsale, Co. Cork, 28.viii.1969 (BRP 167); 7♀♀, 2♂♂, orange iris-type flowers, 2.5 ml N of Monkstown, Co. Cork, 23.viii.1969 (BRP 169); ♀ *Rumex*, Glasnevin, Dublin, det. 1973 (CIE A. 6304); 2♂♂, *Senecio*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

***Thrips physapus* Linnaeus, 1776** [5 samples; 6 adults]

Adult females of *Thrips physapus* and *T. trehernei* Priesner are morphologically very similar, with their separation reliant on morphometric algebraic determinants developed, with slight variations since 1968 (Ward, 1968; Pitkin, 1976; zur Strassen, 2003). These determinants reflect a difference in size with a bimodal curve observed when the determinants are plotted against frequency. *T. physapus* is deemed the smaller species. Males of the two species are more easily separated, with those of *T. physapus* yellow and those of *T. trehernei* brown. However, each determinant for the females allows for an overlap of the two species' ranges so that, for example, Pitkin estimated that about 20% of individuals could not "be recognised with any certainty". This can make identification based on a limited number of adult females problematic. Only three adult females and a single larva catalogued as either *T. physapus* or *T. trehernei* from Northern Ireland were found in the NHM collection. The slide labels for all three females were originally identified as *T. physapus*, but in each case a line has been drawn through "*physapus*" and the name "*hukkineni*" [= *trehernei*] inserted instead, all in ink in Morison's handwriting. However, when the specimens were re-analysed by the author using the algebraic determinants, Ward's principle component (Wpc) indicated one female to be *T. physapus* and the other two to be in the overlap zone. When zur Strassens's slightly different vector (zSv) was applied, all three females were identified as *T. physapus*. Similarly, one of the Republic specimens collected by Pitkin was assigned to *T. trehernei* using Wpc, albeit by just 2µm, but was identified as *T. physapus* if the zSv was applied instead. The other two specimens clearly registered as *T. physapus*.

NORTHERN IRELAND: 2♀♀, *Senecio vulgaris*, Richhill, Co. Armagh, 28.vii.1939 (Wpc 389, 446: zSv 353, 411) (GDM); ♀, *Taraxacum* sp., Rostrevor, Co. Down, 28.vii.1939 (Wpc

434: zSv 394) (GDM).

REPUBLIC OF IRELAND: ♀, *Mentha aquatica*, 4 ml N of Skibereen, Co. Cork, 20.viii.1969 (Wpc 397: zSv 397) (BRP 160); ♀, dwarf furze, Rosscarbery Bay, Co. Cork, 21.viii.1969 (Wpc 410: zSv 382) (BRP 161); ♀, *Centranthus ruber* flowers, Timoleague, Co. Cork, 21.viii.1969 (Wpc 451: zSv 413) (BRP 162).

***Thrips tabaci* Lindeman, 1889** [8 samples; 42 adults]

NORTHERN IRELAND: 12♀♀, *Rubus fruticosus* agg., Belfast, 1.viii.1928 (GDM); 16♂♂, *Campanula*, Belfast, 26.vii.1939 (GDM); 6♀♀, *Digitalis purpurea*, Belfast, 26.vii.1939 (GDM); ♀, *Malus* sp., Belfast, x.1993 (Stephen Jess).

REPUBLIC OF IRELAND: ♀, moss, Glengarriff, Co. Cork, 13.ix.1939 (JL); ♀, *Trifolium pratense*, 2 ml N of Kinsale, Co. Cork, 23.viii.1969 (BRP 168); ♀, *Ranunculus*, Glasnevin, Dublin, det. 1973 (CIE A. 6304); 4♀♀, *Senecio*, Glasnevin, Dublin, det. 1973 (CIE A. 6304).

***Thrips trehernei* Priesner, 1927** [1 sample; 1 larva]

O'Connor's listing of *Thrips trehernei* in his Irish checklist is complicated by the fact that he mistakenly listed it as the unrelated phlaeothripid *Haplothrips hukkineni* Priesner (occasionally found on *Bolboschoenus maritimus* (L.) Palla in south east England). Up to, and including, Mound *et al.* (1976), British literature always referred to *T. trehernei* by its synonym *T. hukkineni* Priesner 1937, wherein the confusion arose. To justify his listing, O'Connor (2008) quoted Pitkin (1976) as describing *Thrips trehernei* as "widely spread and quite common" in Northern Ireland though Pitkin's full phrasing was itself a direct and attributed quote from Morison (1958), "widely spread and quite common in Great Britain and N. Ireland". Morison's comment, however, predated the development of morphometric algebraic determinants to distinguish adult female *T. trehernei* from *T. physapus* (albeit for only c.80% of specimens), which when applied to the limited material found in the NHM collection confirmed specimens as *T. physapus* and not *T. trehernei* (see above). This leaves a single second-instar larva (originally) labelled "*hukkineni*" by Morison. However, neither Speyer and Parr (1941) nor Vierbergen, Kucharczyk and Kirk (2010) included *T. trehernei* in their analyses of the diagnostics of second-instar larvae of European thripids, making it impossible to provide an opinion either as to the identity of this specimen or to how Morison made the determination (other than by association with adults?). Morison (1947-1949) did not mention *T. trehernei*, so there is no detail provided in the literature to support his 1958 comment. Other Morison specimens may exist, unknown to the present author, that may support the inclusion of *T. trehernei* in the Irish checklist, potentially including adult males, which precludes de-listing the species at this point. In any case, given that the species is common and widespread in Britain,

new and extensive sampling of yellow-flowered Asteraceae across Ireland would likely produce specimens that would confirm its presence on the island.

NORTHERN IRELAND: 1L₂, ?Compositae sp., Stormont, Belfast, 26.vii.1939 (GDM).

***Thrips validus* Uzel, 1895** [4 samples; 6 adults, 13 larvae]

NORTHERN IRELAND: ♂, grass, Belfast, 30.vii.1928 (GDM); ♀, *Rubus fruticosus* agg., Belfast, 01.viii.1928 (GDM); 2♀♀, ♂, 3L₁, 12L₂, *Hieracium* sp., Stormont, Belfast, 26.vii.1939 (GDM); ♀, *Hypochaeris radicata*, Rostrevor, Co. Down, 28.vii.1939 (GDM).

***Thrips vulgatissimus* Haliday, 1836** [14 samples; 74 adults]

NORTHERN IRELAND: 2♀♀, *Hieracleum sphondylium*, Belfast, 30-31.vii.1928 (GDM); 39♀♀, ♂, *Rubus fruticosus* agg., Belfast, 1.viii.1928 (GDM); 3♀♀, *Campanula*, Belfast, 26.vii.1939 (GDM); ♀, *Hieracium*, Stormont, Belfast, 26.vii.1939 (GDM); 2♀♀, *Linum usitatissimum*, Cookstown, Co. Tyrone, viii.1941 (R. Chamberlain, det. GDM).

REPUBLIC OF IRELAND: 4♀♀, on pasture land, Portumna, Co. Galway, vi.1963 (R. George, det. GDM); 4♀♀, *Prunus spinosa*, Pallasgreen, Co. Limerick, 14.v.1968 (BRP 97); 5♀♀, 2♂♂, *Brassica nigra*, nr Cork Airport, Co. Cork, 19.v.1968 (BRP 106); ♀, *Lotus corniculatus*, Youghal, Co. Cork, 14.viii.1969 (BRP 151); 2♀♀, *Senecio*, 3 ml S of Killarney, Co. Kerry, 19.viii.1969 (BRP 156); ♀, *Mentha aquatica*, 4 ml N of Skibbereen, Co. Cork, 20.viii.1969 (BRP 160); ♀, *Rubus fruticosus* agg., nr Clonakilty, Co. Cork, 21.viii.1969 (BRP 163); ♀, *Vicia cracca*, nr Clonakilty, Co. Cork, 22.viii.1969 (BRP 166); 5♀♀, *Cytisus scoparius*, Kinsale, Co. Cork, 28.viii.1969 (BRP 167).

***Thrips* spp.** [1 sample; 10 adults]

REPUBLIC OF IRELAND: (across 3 slides) 7♀♀, 3♂♂, *Euphorbia*, Howth, Co. Dublin, undated (R. S. Bagnall) (almost certainly a mix of *T. fuscipennis*, *T. tabaci* and *T. vulgatissimus*).

Two slides labelled with pre-printed slide labels for Floyd Andre, ♀ *Thrips atratus* and ♀ *Thrips flavus*, both marked only “Ireland, on carnation leaves”, are possibly quarantine interceptions by the United States plant health services, or were obtained as part of material exchanges between Andre and other researchers (Mound, 1974).

PHLAEOTHRIPIDAE - PHLAEOTHRIPINAE

***Haplothrips statures* (Haliday, 1836)** [6 samples; 30 adults, 87 larvae]

Adults of *Haplothrips statures* include both macropterous and micropterous forms, the relationship between the two being unclear. Many authors, including Mound *et al.* (1976), have

treated the two morphs as subspecies with the macropterous form designated as *H. statices statices* (Haliday) and the micropterous form as *H. statices morisoni* Priesner. The species has been recorded from coastlines around Great Britain, from the south coast of England to the Orkney Islands, but the micropterous form has only been recorded from northern Scotland and the Scottish islands (Morison, 1974). Adult specimens from Northern Ireland (all dated 1928-1939) are all macropterous. O'Connor (2008) recorded the species from County Dublin based on specimens from North Bull Island that were referenced by Healy (1975). The specimens do not appear to be extant, but Healy recorded that the specimens were all micropterous. O'Connor's placement of the reference under *H. statices statices* was therefore erroneous. Indeed, all the currently known adult specimens from the Republic of Ireland (all from 1968) are micropterous.

NORTHERN IRELAND: 1L₁, 6L₂, *Armeria maritima*, Giant's Causeway, Co. Antrim, 02.viii.1928 (GDM); 10♀♀ macr., 10♂♂ macr., 38L₁, 10L₂, *Armeria maritima*, Belfast, 26.vii.1939 (GDM); ♀ macr., ♂ macr., 12L₁, 8L₂, *Armeria maritima*, Belfast, 27.vii.1939 (GDM).

REPUBLIC OF IRELAND: 3♀♀ micr., 4♂♂ micr., *Armeria maritima*, Sneem, Co. Kerry, 17.v.1968 (BRP 102); ♀ micr., *Fraxinus*, Sneem, Co. Kerry, 17.v.1968 (BRP 104); 12L₂, *Armeria maritima*, Kilmore Quay, Co. Wexford, 24.viii.1968 (BRP 171).

***Hoplothrips pedicularius* (Haliday, 1836)** [2 samples; 13 adults]

The absence of any material from Northern Ireland leaves the status of the species there, reported by Morison (1947-1949), unsupported by a known, extant, voucher specimen.

REPUBLIC OF IRELAND: 5♀♀, 7♂♂, dead plane logs, 2ml W of Killarney, Co. Kerry, 15.viii.1969 (BRP 153); ♀, dead log, nr Glengariff, Co. Cork, 19.viii.1969 (BRP 157).

***Phlaeothrips annulipes* Reuter, 1880** [1 sample; 1 larva]

Phlaeothrips annulipes is a fungal-feeding species, found on dead branches of trees such as birches or willows. It was recorded as Irish by O'Connor (2008) after Mound *et al.* (1976) included Armagh in their county listings for the species. There is only one Irish slide in the NHM collection, that of a single second-instar phlaeothripid larva, which was presumably identified as *P. annulipes* by a combination of its habitat, habitus and colour. The larvae are described as "bright red" (Mound, Collins and Hastings, 2018) or "crimson" (Morison, 1947-1949) and can sometimes be found in large colonies. By contrast, the larvae of its sole British congener, *P. coriaceus* Haliday are predominantly pale. The treated, slide-mounted, NHM specimen is orange-brown to the eye. Morison was familiar with the larvae, describing in print that it could be easily separated from potentially confusing species such as *Hoplandrothrips*

ellisi (Morison 1947-1949), but it appears that no formally determined adult material currently supports inclusion of this species on the Irish checklist.

NORTHERN IRELAND: 1L₂, sticks, Portadown, Armagh, 07.v.1948 (GDM).

Discussion

This study confirmed the NHM to be the largest single depository of slide-mounted, identified, Irish thrips specimens. The majority of published references to Irish thrips were found to be based on specimens now held in the NHM collection. The gaps are identified and highlighted in this paper. The current study recorded 674 individual adult thrips (excluding the two Andre Floyd specimens), and a further 148 larval and 11 pupal thrips, collected as 84 separate (host/location) samples, forty from Northern Ireland and forty-four from the Republic of Ireland. This compares with the 12 individuals mounted on 10 slides in the collection of the NMI. Exactly half of the adults (337 individuals) represent just six species, all common and widespread, polyphagous, florivores in Great Britain: *Thrips atratus*, *T. flavus*, *T. fuscipennis*, *T. major*, *T. tabaci* and *T. vulgatissimus*. These are the species that dominate the “catch” from casual or untargeted collecting in Britain and elsewhere in western Europe, not least because, readily carried by winds, they are often found in the flowers of plants on which they do not breed. A further 161 adults represent 6 common, grass-living, thrips (*Aptinothrips rufus*, *A. styliifer*, *Baliothrips dispar*, *Chirothrips manicatus*, *Limothrips cerealium* and *L. denticornis*), though this includes the 78 adult *A. rufus* mounted onto a single slide from 1928.

The addition of *Aeolothrips ericae*, *Odontothrips cytisi* and *O. ignobilis* to the Irish checklist means that it now includes 39 species in 20 genera from 3 families; one further species is recorded as a non-established record of an incursion. The NHM collection contains Irish specimens from 33 species of thrips; thus, only six (*Bolothrips dentipes* (Reuter), *Haplothrips juncorum* Bagnall and *Odontothrips loti* (Haliday), plus the three introduced glasshouse pest species *Echinothrips americanus*, *Frankliniella occidentalis* and *Heliothrips haemorrhoidalis* (Bouché)) are not represented. However, two slides of *F. occidentalis* are amongst the small holding of slide mounted material held by the NMI. It appears that none of Richard Bagnall’s Portmarnock specimens of *B. dentipes* were amongst his large collection of thrips slides obtained by the NHM in 1932. Likewise, the males of *O. loti* collected by Ken Smith at Killoughter, County Wicklow, in 1951, and identified by Guy Morison, were seemingly not part of Morison’s later donation to the NHM. Specimens of *H. juncorum* collected by Brenda Healy at North Bull Island, Dublin, in the early 1960s were sent to Ernest Speyer for identification. The current author is unaware of any surviving slide mounts made by Speyer beyond the relatively few examples deposited at the NHM; Speyer worked at the horticultural Experimental and Research Station at Cheshunt in Hertfordshire, long-since closed and incorporated into an

evolving chain of successor organisations. It is possible that he did not have a collection as such (Laurence Mound, personal communication).

It is not within the remit of this study, which cannot claim to be a comprehensive accounting of Irish thrips material, to remove any species from the Irish checklist, nor the checklists for either Northern Ireland or the Republic, because of an apparent lack of extant specimens. Nevertheless, it seems unlikely that there are many other specimens, if any, other than possible card-mounted Haliday types, to be found elsewhere to support the published records that underpin the original O'Connor checklist. Hence, it is worth noting that no known specimens currently support the presence of three species in Northern Ireland (*Limothrips denticornis*, *Odontothrips ulicis* and *Hoplothrips pedicularius*) or two species in the Republic of Ireland (*Aptinothrips stylifer* and *Thrips discolor*). Of further note, the inclusion of three species in the Irish checklist (*Belothrips acuminatus*, *T. trehernei* and *Phlaeothrips annulipes*) is based solely, in each case, on a single second-instar larva. This is unusual, given that morphological thrips identification is based on adult material, primarily adult females. The identifications of *B. acuminatus* and *P. annulipes* are not disputed here; it is impossible to confirm or refute the identification of *T. trehernei*. There are no reasons, based either on known biogeography and/or levels of abundance in Great Britain, to presume any of the above records to be unlikely, so it is hoped that this study will spur future collecting to confirm the presence of these species as designated.

Mound, Collins and Hastings (2018) excluded three species mentioned by O'Connor (2008) from their Irish checklist, as their presence in Ireland had never been formally confirmed. No Irish specimens of the three, *Kakothrips pisivorus* Westwood, *Haplothrips setiger* Priesner or *H. senecionis* Bagnall, were found during this study.

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PLATE 1. *Belothrips acuminatus*, second-instar larva, abdominal segments VII-X. Bushmills, County Antrim, 24 July 1958 (identification by Guy Morison).



PLATE 2. Comparison between Irish specimens of *Odontothriops cytisi* and *O. ulicis* collected by Brian Pitkin 1968-69: a) *O. cytisi*, right wing (BRP 101), b) *O. ulicis*, right wing (BRP 92).

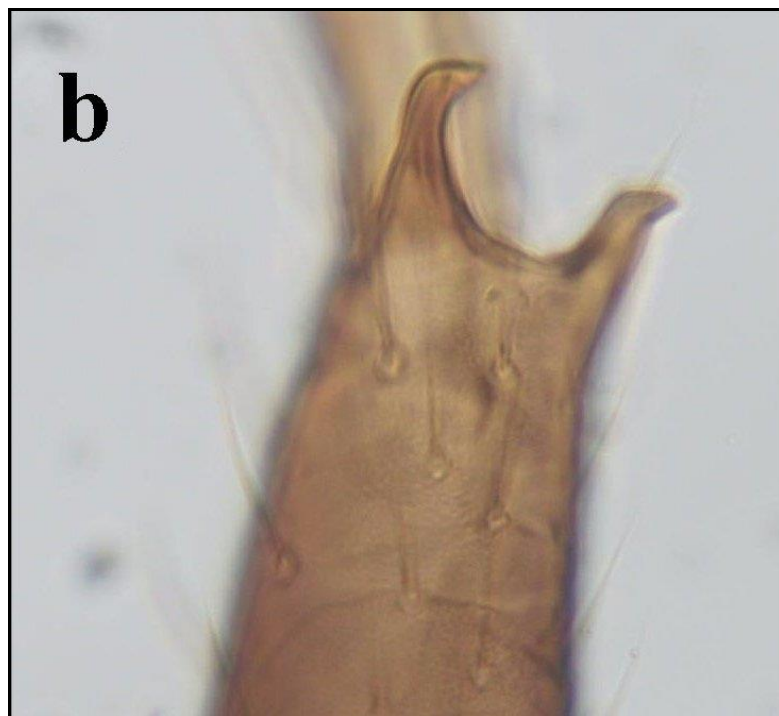


PLATE 3. Comparison between Irish specimens of *Odontothriops cytisi* and *O. ulicis* collected by Brian Pitkin 1968-69 (continued): a) *O. cytisi*, apex of right tibia (BRP 101), b) *O. ulicis*, apex of left tibiae (BRP 92).