



Weevils (Coleoptera, Curculionoidea) and Other Insects Collected in North West Clare, with Special Reference to the Burren Region

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WEEVILS (COLEOPTERA, CURCULIONOIDEA) AND OTHER
INSECTS COLLECTED IN NORTH WEST CLARE, WITH
SPECIAL REFERENCE TO THE BURREN REGION.

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(Communicated by D. A. Webb, M.R.I.A.)

PLATE XIII

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ABSTRACT

1. Previous zoological work in the Burren region is briefly described.
2. Annotated lists of Curculionoidea taken in and outside the Burren region are given.
3. Abbreviated lists of other insects recorded from the same areas are included.
4. The species of Curculionoidea found are discussed in relation to their biology and distribution.

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INTRODUCTION

The remarkable limestone karst area of north-west Clare, known as the Burren, has received considerable attention from plant ecologists (e.g. Tansley, 1953) and botanists. A recent list of noteworthy plants of the region is that of Webb (1962). Tansley attributed the development of a series of interesting plant communities to the action of an oceanic climate on the Carboniferous limestone; to the high rainfall and relative humidity; and to strong winds, allowing the pioneer xerophytes to be quickly succeeded by other vegetation.

Zoologists have been much slower in recognising the particular interest of the Burren. Before 1949 lepidopterists knew the area as a locality for the butterfly *Argynnis euphrosyne* (L.) and the moth *Zygaena purpuralis* (Bruenn.) but the discovery of the spectacular green moth *Calamia tridens* Hufn. (= *Luceia virens* L.) in that year (Classey et al., 1951) gave the impetus to several expeditions to the Burren by entomologists, particularly lepidopterists. Extensive lists of both "macro-" and "micro-" lepidoptera have been made (Classey et al., 1951; Mere et al., 1962, 1964; Bradley, 1952, 1953, 1960; Huggins, 1954, 1957) and other collectors e.g. de Worins, 1963; Richardson, 1952; Haynes, 1963 have given shorter accounts of species recorded. Notable moths of the Burren include two "plumes", *Alucita icterodactyla* (Mann) and *Platyptilia tesseradactyla* (L.). The former species, discovered in the Burren in 1952 (Bradley, 1953), was thought to be confined to that area in the British Isles, but has recently been recorded from Cornwall (Pelham-Clinton, 1965). *P. tesseradactyla* was recorded from the Burren in 1898, having previously been known from two localities in Co. Galway (Kane, 1898), and also occurs in Co. Tyrone (Greer, 1937; Huggins 1939, 1963), though not in Great Britain.

More recently, zoologists have surveyed other groups of animals in the Burren. Lawrence (1961, 1963) worked the Collembola, and Lansbury (1965) studied the waterbugs and some other groups of invertebrates and classified some of the Burren loughs. Richards (1961) recorded the fauna of a limestone-pavement crevice and suggested that specialist surveys would be of interest in view of a number of species which he reported which were previously unrecorded or rare in the British Isles.

The distribution of the plants and animals of the Burren has several important aspects. The mingling of northern and southern species is marked and will be referred to later. The occurrence of "Lusitanian" species is another feature of interest. These species, which have pronounced westerly distributions in Europe, occur in the Iberian peninsula, in the south-west peninsula of England, and/or south-western and western Ireland. The relationship of this type of distribution to other westerly European distributions, such as the "Atlantic" (the carabid beetle *Eurynebria complanata* (L.)) and the, perhaps wrongly named, "east coast [of Ireland] Lusitanian" (the weevil *Otiorrhynchus auropunctatus* Gyll.), is not fully known.

In June 1965, a party consisting of Dr. E. Duffey, Mr. G. C. D. Griffiths and myself visited the Burren to survey, respectively, the Araneae, the Agromyzidae (Diptera) and the Curculionoidea (Coleoptera). The sites worked

included, for comparison, a few outside the Burren area as defined by Webb (1962). In August 1959, I spent a holiday in N.W. Clare and although no systematic collecting was done, a few species of weevils were recorded at that time and are now included in this account.

PREVIOUS RECORDS OF WEEVILS FROM COUNTY CLARE

Johnson and Halbert (1902), summarising records of Irish Coleoptera up to the year 1901, list twenty-six species of Curculionoidea as occurring in Co. Clare. Of the few for which detailed localities are given, only two, *Ceuthorrhynchus rugulosus* (Herbst) and *Miarus campanulae* (L.) are recorded for the Burren. Since 1902, very few accounts of species collected in Co. Clare have appeared and most of the records are from the south of that county. Kemp (1904) lists twenty-seven species from Co. Clare near Limerick, while three species taken at Cratloe Wood near Limerick are mentioned by Anon. (1903). Richards' (1961) account of a limestone crevice fauna on the Burren near Fermoy includes records of *Otiorrhynchus sulcatus* (F.) and *O. rugifrons* (Gyll.) as well as a probable larva of *Sciaphilus asperatus* (Bons.).

There is no evidence that the unique nature of the Burren region was recognised by the earlier Irish coleopterists. This causes no surprise in view of the small number of workers and the extent of the country to be covered. The weevils of Co. Clare are as well recorded as those of most Irish vice-counties. On the other hand, the area might have attracted attention as being situated close to western Mayo, well worked during the Clare Island Survey (Johnson and Halbert, 1912), and Kerry, well worked both by visiting and resident coleopterists.

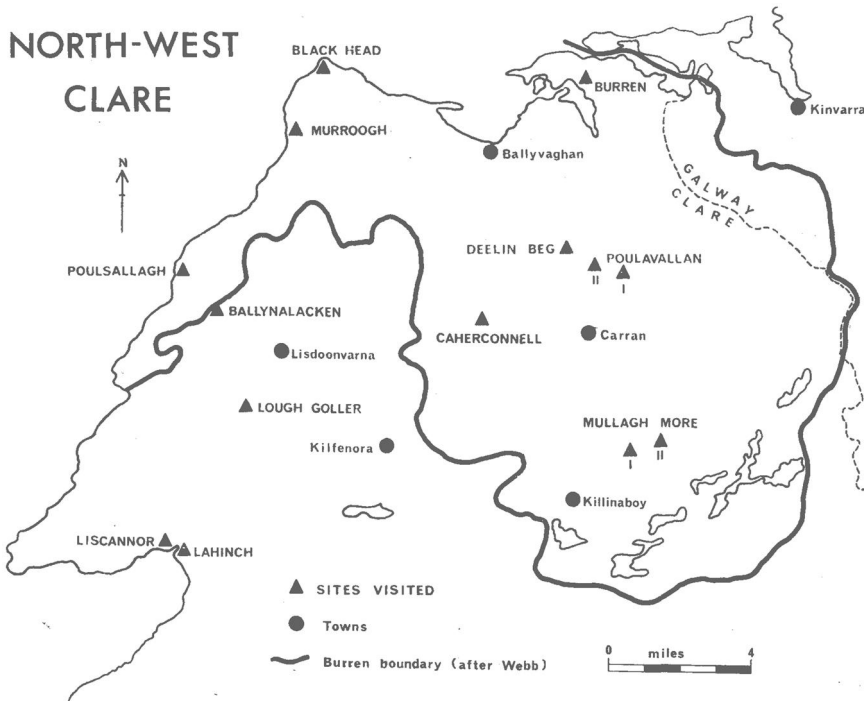
LISTS AND DESCRIPTIONS OF SITES VISITED

A. Burren Sites. Webb's (1962) definition of the Burren region has been followed. All the Burren sites visited, with the exception of Murroogh and Burren village (*vide infra*) consisted of limestone pavement with other kinds of habitats as well. The sites were well distributed over the whole area of the Burren with the exception of the extreme east of the region (Fig. 1).

All the sites are in Co. Clare although the Burren takes in a small part of Co. Galway. A 1 km. Irish Grid Reference (IGR) is given for each site and also a 10 km. reference of the British Grid (BGR), used by Perring and Walters (1962) in their Atlas of the British Flora, and contiguous with the National Grid of Great Britain. The dates on which the sites were visited are included.

MULLAGH MORE "I" IGR R 29 94; BGR 93/26; 10.vi.1965 and 12.vi.65. Two sites near the hill of Mullagh More were visited, called for convenience Mullagh More "I" and "II". At Mullagh More I, limestone pavement,

the vegetation of which is grazed, slopes down to a turlough. No trees were worked, except a few roadside bushes of hawthorn (*Crataegus monogyna* Jacq.).



(Based on the Ordnance Survey by permission of the Government)

FIG. 1.—North-west Clare, showing sites at which Curculionoidea were collected.

MULLAGH MORE "II" IGR R 31 94; BGR 93/36; 10.vi.1965 and 16.vi.1965. This site also consists of limestone pavement and a turlough, but there is also extensive scrub woodland consisting mainly of hazel (*Corylus avellana* L.). A roadside verge was also worked.

POULSALLAGH IGR M 08 02; BGR 93/07 and 17; 10.vi., 12.vi., and 13.vi.1965. The road from Lisdoonvarna to Black Head here divides the limestone pavement of the hillside from the more level pavement close to the sea (Pl. XIII B). There are no trees, but the roadside verges proved to be of some interest. The area was worked for Lepidoptera by Mere et al. (1962, 1964) but not referred to by name ("coast below Ballynalacken Castle").

MURROOGH IGR M 13 08; BGR 93/18; 11.vi.1965. This is a small area of sand dunes with grazed dune meadow. Plants along the track leading to the dunes were also worked. There are no trees or limestone pavement vegetation. The locality should be compared with the sand dune areas visited which are not in the Burren area, Liscannor and Lahinch. The Murroogh locality is named, perhaps more accurately, "Fanore Strand" by Mere et al. (1962).

BLACK HEAD IGR M 15 12; BGR 93/18; 11.vi.1965. The pavement of the lower westward slopes of Doughbeanneen above the road were worked, as well as the small amount of vegetation between the road and the sea. No trees are present in the area.

POULAVALLAN "I" IGR M 30 02; BGR 93/27; 12.vi.1965. This site was near the road from Carran to Bealaclogga and consisted of very poorly developed limestone pavement with trees, mainly hazel and willow (*Salix* spp.), and roadside habitats. It was worked when prolonged rain prevented access to Poulavallen "II".

POULAVALLAN "II" IGR M 28 02; BGR 93/27; 14.vi.1965. This site, a natural amphitheatre in the hills, is marked as a lough on most maps but in fact is now completely dry. It is the best wooded area which was visited, though apparently not the best in the Burren. The trees include rowan (*Sorbus aucuparia* L.), hazel, hawthorn, willow and aspen (*Populus tremula* L.), although the rowan trees could not be worked because the branches were too far from the ground. The limestone pavement of the surrounding hills was also worked.

DEELIN BEG IGR M 27 03; BGR 93/27; 15.vi.65. This site has willow trees and hazel scrub with a field layer; all were worked but not extensively.

CAHERCONNELL IGR R 22 99; BGR 93/27; 14.vi.65. This is a rather varied site with a cliff-face vegetation, limestone pavement with hawthorn trees, pasture and roadside verges, all of which were worked.

BURREN VILLAGE IGR M 27 11; BGR 93/28; 15.vi.65. Collecting at this site was done from the very diverse aquatic and semi-aquatic vegetation of the lough near the village.

ABBEY HILL IGR M 30 11; BGR 93/38; 6.viii.59. This hill lies between Burren village and Corranroo, Co. Galway and is not included in Fig. 1 because it was visited only in 1959. The plant communities of the limestone pavement of the upper slopes of the hill were worked.

A few insects were collected during brief stops in other parts of the Burren; these localities are mentioned under the names of the species concerned.

B. Sites Outside The Burren. The few sites visited here contrast well in their plant communities with those of the limestone Burren area. A similar arrangement regarding information of each area is now given.

BALLYNALACKEN CASTLE IGR M 10 00; BGR 93/17; 11.vi.65, 15.vi.65, also 6.viii.59. This site is on the edge of the Burren but as the vegetation worked is atypical, it is considered not to be part of that area. The habitat from which collections were made included a meadow rich in flowering plants; plants near the ruined castle; and vegetation of the nearby shales.

LOUGH GOLLER IGR R 12 96; BGR 93/16; 13.vi.65. Near this lough, a number of interesting and diverse habitats are developed which may be roughly classified into three types: 1. Blanket bog, much worked for peat, with a typical flora. A field layer and ground zone only are present, no shrubs or trees. 2. Fen, very rich in flowering plants, with large clumps of *Carex paniculata* L. and some willow bushes. 3. Woodland, consisting of a dense, scrubby oakwood fringed with willow.

LISCANNOR IGR R 08 88; BGR 93/06; 16.vi.65. The sand dunes west of O'Brien's Bridge were worked and also a marshy piece of ground north of the L.54 road.

LAHINCH IGR R 09 88; BGR 93/06; 16.vi.65. This site is very near and similar to the last, but the dunes are more extensive and varied and there is no marshy area.

A number of species of weevil was taken at other sites, particularly in the neighbourhood of Ennistymon in 1959. The localities are mentioned under the names of the appropriate species.

METHODS OF COLLECTING

The usual methods of beating the branches of trees over a tray, sweeping field layer vegetation with a net and "grubbing" (searching vegetation and soil surface at ground level) were employed. The known foodplants of weevil species were particularly searched and special attention was given to roadsides, since many species of weevils occur on such plants as *Urtica dioica* L., *Cirsium* spp., *Rumex* spp., *Plantago* spp. etc. growing in these places. Stones were turned over on limestone pavement. Pitfall traps, set at Poulisallagh, caught no weevils. Ecological data are recorded for the species collected where possible, but for a number of species, the details are imprecise. Although the sites were worked for different lengths of time, it is thought that comparison between them has some meaning.

Species other than weevils were not collected systematically but were recorded as time and circumstances permitted.

ANNOTATED LIST OF CURCULIONOIDEA COLLECTED

A. Burren Sites

ATTELABIDAE

Caenorhinus germanicus (Herbst). One example by roadside sweeping, Poulisallagh. The only attelabid known to be widespread in Ireland.

APIONIDAE

Apion curtirostre Germ. Single specimens, by sweeping *Rumex acetosa* L. at Black Head, and by general sweeping at Murroogh, Poulisallagh, Caherconnell and Poulavallan "II", Common in Ireland (Johnson & Halbert, 1902).

A. carduorum Kirby. One example tapped from *Cirsium vulgare* (Savi) Ten. with *A. dentirostre* at Poulsallagh; five swept from *C. arvense* (L.) Scop., Caherconnell. Common in Ireland (Johnson & Halbert, 1902).

A. dentirostre Gerst. Two specimens at Murroogh and eight (on three different occasions) at Poulsallagh, in every case on *Cirsium vulgare*. This species was first recorded from Ireland by Richards (1960) who found a single specimen near Tuam, Co. Galway. On 15th June 1965, I collected a specimen from *C. vulgare* at Oranmore Bay, Co. Galway (Morris, 1966c). Abroad the species is only known from southern Spain, Richards (1960) giving Mérida as the only locality, while Gerstaecker (1854), gives Andalusia. All the specimens collected during this visit are females. Compared with *A. carduorum*, the most closely allied British species, *A. dentirostre*, as noted by Richards, is larger and the elytra are smoother. The rostrum of *A. dentirostre* is longer and more curved than that of *A. carduorum* and the interstices of the elytra are wider. The deep blue colour of *A. dentirostre* is very striking. The taking of several examples of the species at different localities on *Cirsium vulgare* suggests that this is the foodplant. A typical plant of *C. vulgare* on which *A. dentirostre* occurred at Poulsallagh is illustrated (Pl. XIII A). Most species of *Ceratapion*, to which subgenus *A. dentirostre* belongs, feed on Compositae, many on "thistles", e.g. *A. carduorum*, often associated with *Cirsium arvense*.

The known distribution of *A. dentirostre* strongly suggests that it is a "Lusitanian" species. It appears to be local in Clare, since it was recognised on the first day of our visit and worked for at many localities, yet only found at two of them.

A. loti Kirby. Several specimens at Mullagh More "II" and Murroogh by general sweeping, three at Mullagh More "I" under *Lotus corniculatus* L., the foodplant. Abbey Hill, one example swept. Common in Ireland (Johnson & Halbert, 1902).

A. pisi F. Two specimens shaken from vegetation overhanging a depression in evolved dunes at Murroogh.

A. aethiops Herbst. Caherconnell, one example by general sweeping. At Poulavallan "I" Mr. Griffiths drew my attention to weevil larvae in stem galls on *Vicia sepium* L. Only two galls were found, each with a single larva, one of which was preserved. From the other larva, a specimen of this species emerged.

A. viciae (Payk.). Mullagh More "I", a singleton swept from *Vicia* sp.; Poulsallagh, four specimens, also swept from *Vicia* sp.; Burren village, one by general sweeping. Common in Ireland (Johnson & Halbert, 1902).

A. ervi Kirby. A pair taken from *Cirsium vulgare* (which is not the foodplant) near Glencolumnkille House, three miles east of Carran (IGR R 32 99, BGR 93/37), 12.vi.65. Common in Ireland (Johnson & Halbert, 1902).

A. virens Herbst. One on *Cirsium arvense* (not a host plant), Murroogh. Common in Ireland (Johnson & Halbert, 1902).

A. dichroum Bedel. One at Black Head and two at Poulisallagh by general sweeping; three at Mullagh More "I" and the same number at Murroogh under *Trifolium repens* L., the foodplant. Common in Ireland (Johnson & Halbert, 1902).

A. nigrirtarse Kirby. Two examples by general sweeping, Abbey Hill.

A. apricans Herbst. Mullagh More "I", nine specimens swept from *Trifolium pratense* L. One example at Mullagh More "II"; two at Poulisallagh; and three at Caherconnell and at Deelin Beg, by general sweeping. Common in Ireland (Johnson & Halbert, 1902).

CURCULIONOIDEA

Otiorrhynchus arcticus (O. Fabricius) v. *blandus* Gyll. A number of specimens were found on very stony ground of the limestone pavement near the sea at Poulisallagh (Pl. XIII B). They occurred at the roots of plants, almost always *Plantago maritima* L., and occasionally under stones, in company with smaller numbers of *O. ligneus* (Oliv.), *O. rugifrons* (Gyll.) and *O. sulcatus* (F.). One stone, about 20 × 15 cm., had two *O. arcticus* and one *O. rugifrons* beneath it. *O. arcticus* occurs in most of the coastal counties of Ireland, except those of the east between Down and Waterford. It is widely distributed in Scotland, especially in the north. Apart from the Isle of Man, it is not known in England except as sub-fossil material of full-glacial and late-glacial age (Pearson, 1963). It is a true "arctic" species and occurs elsewhere only in Scandinavia.

O. ligneus (Oliv.). Single specimens at Mullagh More "I" under a stone and at Poulisallagh at the roots of *Plantago maritima* (see above).

O. singularis (L.). Poulisallagh, one shaken from *Cirsium vulgare*. Caherconnell, one by general sweeping; Poulavallan "II", five and others seen, by beating sallow, hawthorn and aspen. Common in Ireland (Johnson & Halbert, 1902).

O. sulcatus (F.). Mullagh More "II" and Black Head, single specimens under stones on pavement. Poulisallagh, four specimens with *O. arcticus* etc. Common in Ireland (Johnson & Halbert, 1902).

O. rugifrons (Gyll.). A singleton at Mullagh More "II" and two at Black Head and at Poulavallan "II", all under stones. Four specimens at Poulisallagh with *O. arcticus*. "Common on the coast, especially in the west." (Johnson & Halbert, 1902.)

O. atroapterus (Deg.). Murroogh, three examples on sand and one on a stem of *Ammophila arenaria* (L.) Link, marram grass. Confined to maritime sand dunes.

Phyllobius parvulus (Oliv.) (*viridiaeris* auctt.). Single examples by general sweeping at Murroogh, Black Head, Poulavallan 'I' and Caherconnell. Common in Ireland. (Johnson & Halbert, 1902).

P. oblongus (L.). Mullagh More "I", two beaten from hawthorn; Mullagh More "II", two beaten from hazel; Poulavallan "I", a singleton beaten from hawthorn or willow. Single examples at Caherconnell and Poulavallan "II" by beating hawthorn and hazel respectively. Common in Ireland (Johnson & Halbert, 1902).

P. pyri (L.). A single specimen was beaten from hazel at Mullagh More "II". This species is abundant in England but appears to be scarce in the Burren.

P. argentatus (L.). One of the abundant species on hazel in the Burren. Recorded from Mullagh More "II", Poulavallan "I" and "II" and Deelin Beg. Common in Ireland (Johnson & Halbert, 1902).

Polydrusus pterygomalis Boh. As common as *P. argentatus* on hazel in the Burren and recorded from the same sites. Also at Caherconnell, by beating hawthorn. Common in Ireland (Johnson & Halbert, 1902).

P. cervinus (L.). Three examples at Mullagh More "II" by beating hazel and one at Poulavallan "I" by beating hazel or willow.

Liophloeus tessulatus (Müll.). A single example on ivy (*Hedera helix* L.) growing on a wall at Mullagh More "I".

Sciaphilus asperatus (Bons.) (*muricatus* (F.)). One example under a stone and two by general sweeping at Mullagh More "I" on the first day of the visit to the Burren but not seen again. Common in Ireland (Johnson & Halbert, 1902).

Philopeton plagiatus (Schall.). Four examples at the roots of grasses on "developed" dunes at Murroogh. Johnson & Halbert (1902) state that the species is common [in Ireland], a statement presumably referring to maritime sand dunes only, the usual habitat. This species is not uncommon in some inland arenaceous habitats in England.

Barynotus obscurus (F.). Single examples at Poulavallan "I" (general sweeping) and Caherconnell (tapped from *Vicia sepium*). Common in Ireland (Johnson & Halbert, 1902).

Sitona striatellus Gyll. (*tibialis* (Herbst)). Murroogh and Poulavallan "I", single examples by general sweeping. Caherconnell, five swept from *Vicia* sp. Near Carran (IGR R 28 99, BGR 93/37), 12.vi.65, on *Vicia sepium*. Common in Ireland (Johnson & Halbert, 1902).

S. lepidus Gyll. A single specimen by general sweeping, Abbey Hill. Common in Ireland (Johnson & Halbert, 1902).

S. lineellus (Bons.) (*decipiens* Lindberg). One example under *Lotus corniculatus*, Mullagh More "I". Although Donisthorpe (1935) showed that two species were confused under the name *lineellus* by British entomologists before 1935 it seems probable that all Irish records refer to the species known until recently as *decipiens* Lindberg. Kevan (1962) showed that the correct name of this species is *lineellus* while Allen (1962) described the British distribution of the species.

Hydronomus alismatis (Marsh.). Two larvae, almost certainly of this species, were found in leaf mines on *Alisma plantago-aquatica* L. at Burren village.

Dorytomus taeniatus (F.). Three specimens beaten from willow, Deelin Beg. "Common on willows in spring" (Johnson & Halbert, 1902).

D. rufatus (Bedel). One, with *D. taeniatus*.

Miccotrogus picirostris (F.). Murroogh, two under *Trifolium* sp.

Anthonomus brunneipennis Curtis (*comari* Crotch). Single specimens at Mullagh More "I" by general sweeping and Mullagh More "II", swept from *Potentilla fruticosa* L. Five examples by general sweeping at Abbey Hill. Kevan (1966) has shown that this species, long regarded as a variety of *A. rubi* (Herbst), is in fact a separate species.

A. pedicularius (L.). Two beaten from hawthorn in bloom, Poulavallan "II". Common in Ireland (Johnson & Halbert, 1902).

Liosoma deflexum (Panz.). A single specimen swept from *Anemone nemorosa* L. at Poulavallan "I". Common in Ireland (Johnson & Halbert, 1902).

Phytonomus posticus (Gyll.). Five, under *Trifolium ?dubium* Sibth., at Murroogh, with probable larvae on the plant as well. Johnson & Halbert (1902) describe the beetle as common in Ireland, though not recorded from Connaught.

Micrelus ericae (Gyll.). Black Head, three specimens and Mullagh More "II", one, all swept from *Calluna vulgaris* (L.) Hull. Six specimens from Abbey Hill. "Common on heather" (Johnson & Halbert, 1902).

Cidnorhinus quadrimaculatus (L.). Poulsallagh, three and single specimens at Murroogh and Caherconnell, in each case by sweeping *Urtica dioica* L.

Ceuthorhynchidius dawsoni Bris. Poulsallagh, in numbers under *Plantago maritima* as well as *P. coronopus* L., the usual foodplant. Recorded from five other coastal vice-counties in Ireland (Johnson & Halbert, 1902, 1912).

C. troglodytes (F.). One swept from *Plantago lanceolata* L. at Poulsallagh. Single specimens at Caherconnell and Burren village and two at Black Head, by general sweeping. Common in Ireland (Johnson & Halbert, 1902).

Ceuthorhynchus floralis (Payk.). Single specimens by general sweeping at Mullagh More "II" and Burren village. Common in Ireland (Johnson & Halbert, 1902).

C. unguicularis Thoms. A full account of the occurrence of this species, not previously known from Britain, at Mullagh More "II" and Caherconnell on *Arabis hirsuta* L. is given by Morris (1966b). The only other known locality in the British Isles is Mildenhall, Suffolk.

Rhinoncus pericarpus (L.). Caherconnell, one swept from *Rumex* sp. Common in Ireland (Johnson & Halbert, 1902).

R. perpendicularis (Reich). Burren village, one swept from *Polygonum amphibium* L. Common in Ireland (Johnson & Halbert, 1902).

Orobitis cyaneus (L.). Single specimens on *Viola* sp. at Caherconnell and Mullagh More "I". At the latter site, larvae were rather common in seed capsules of the foodplant (*Viola*). Johnson & Halbert (1902) state that this species is uncommon in Ireland.

Gymnetron labile (Herbst). Poulisallagh, in some numbers (seven taken) by sweeping *Plantago lanceolata*.

Miarus campanulae (L.). Single specimens at Mullagh More "I" and Poulisallagh, and two at Mullagh More "II", all by general sweeping. Three specimens swept from the foodplant, *Campanula rotundifolia* L. at Abbey Hill. A very local species in Ireland in the vice-counties of S.E. Galway and Longford.

Rhamphus pulicarius (Herbst). One by sweeping near the turlough, Mullagh More "II".

B. Sites Outside The Burren

APIONIDAE

Apion violaceum Kirby. Single specimens at Ballynalacken Castle and Lough Goller by general sweeping. One at Liscannor, swept from *Rumex* sp. Common in Ireland (Johnson & Halbert, 1902).

A. hydrolapathi (Marsh.). One near Lahinch (1959). Common in Ireland (Johnson & Halbert, 1902).

A. curtirostre Germ. One at Liscannor and two at Lough Goller by sweeping *Rumex acetosa*. Single specimens at Ballynalacken Castle, near Lisdoonvarna (1959) and near Ennistymon (1959), all by general sweeping.

A. ulicis (Forst.). Two at Lahinch, beaten from *Ulex europaeus* L., and a few larvae in seedpods of that plant. Common in Ireland (Johnson & Halbert, 1902).

A. haematodes Kirby. One at Lough Goller, probably swept from *Rumex acetosa*. Common in Ireland (Johnson & Halbert, 1902).

A. carduorum Kirby. One near Ennistymon (1959).

A. loti Kirby. Lahinch, one under *Lotus corniculatus*.

A. aethiops Herbst. One by general sweeping, Ballynalacken Castle.

A. ervi Kirby. Two specimens by general sweeping near Ennistymon (1959).

A. virens Herbst. One at Lahinch and three at Liscannor, all under *Lotus corniculatus*.

A. dichroum Bedel. Three examples under *Trifolium repens* at Liscannor.

A. nigrifars Kirby. One at Lahinch under *Trifolium repens*. One near Ennistymon and two at Ballynalacken Castle, by general sweeping (1959).

A. apricans Herbst. Single specimens near Ennistymon and near Lahinch by general sweeping (1959).

Nanophyes marmoratus (Göze). Four examples swept from the foodplant *Lythrum salicaria* L. in the fen at Lough Goller. Ennistymon, two examples, 5.viii.59.

CURCULIONOIDEA

Otiorrhynchus singularis (L.). One beaten from willow by the oakwood at Lough Goller.

O. sulcatus (F.). Lahinch, one on the sand dunes, clinging to a grass stem, 7.viii.59.

O. atroapterus (Deg.). Lahinch, three on sand.

Phyllobius parvulus (Oliv.). Ballynalacken Castle, in numbers. Especially common on *Lathyrus pratensis* L., many feeding actively on the plant. Also abundant on *Urtica dioica*.

Liophloeus tessulatus (Müll.). Ballynalacken Castle, one specimen on *Lathyrus pratensis* and equidistantly placed from plants of *Heracleum sphondylium* L. and *Hedera helix*. There is still some difference of opinion whether this weevil feeds on *Hedera* or Umbelliferae, or both (Allen, 1966). The specimen taken at Mullagh More "I" (see above) was not near umbellifers.

Philopodon plagiatus (Schall.). Two at the roots of grasses, Lahinch.

Sitona regensteinensis (Herbst). Ballynalacken Castle, a single specimen beaten from *Ulex europaeus*.

S. striatellus Gyll. Ballynalacken Castle, four by general sweeping.

S. lepidus Gyll. One near Lahinch (1959), by general sweeping.

S. lineellus (Bons.). Liscannor, five under *Lotus corniculatus*.

Miccotrogus picirostris (F.). Two at Liscannor and one at Lahinch, all under *Lotus corniculatus*.

Anthonomus brunneipennis Curtis. Lough Goller, twelve examples from the blanket bog, nearly all on the flowers or foliage of *Potentilla erecta* (L.). Räusch.

Curculio salicivorus Payk. Lough Goller, four examples beaten from willow near the oakwood and on the fen. Common in Ireland (Johnson & Halbert, 1902).

Liosoma deflexum (Panz.). Lisdoonvarna, 12.vi.65, one on *Ranunculus repens* L., in the centre of the town.

Phytonomus rumicis (L.). One, by general sweeping, Ennistymon, 5.viii.59. Common in Ireland (Johnson & Halbert, 1902).

Limnobaris pilistriata (Steph.), Lough Goller, eleven specimens by sweeping over the blanket bog; it was impossible to see what plant they came from. Champion (1905) drew attention to the fact that British entomologists had previously included two species under the name *L. t-album* (L.). Halbert (1910) and Johnson & Halbert (1912) stated that all Irish records of *L. t-album* should be referred to *L. pilistriata*.

Micrelus ericae (Gyll.). Lough Goller, three specimens swept from the bog. Slieve Elva, near Lisdoonvarna, one example, 3.viii.59.

Cidnorhinus quadrimaculatus (L.). Ballynalacken Castle, one on a leaf of *Urtica dioica*; Liscannor, one, by sweeping the same plant. Near Ennistymon, 1959, one, by general sweeping.

Ceuthorhynchidius troglodytes (F.). Ballynalacken Castle, one by general sweeping.

Ceuthorhynchus floralis (Payk.). A single specimen by general sweeping in the fen, Lough Goller.

Rhinoncus pericarpus (L.). One by general sweeping, Ballynalacken Castle.

Phytobius comari (Herbst). On the fen, Lough Goller, one tapped from *Lythrum salicaria* and one swept from the foodplant, *Potentilla palustris* (L.) Scop.

Mecinus pyraister (Herbst). One by general sweeping, Ennistymon, 5.viii.59.

Rhynchaenus salicis (L.). Lough Goller, two examples beaten from willow, one near the wood and one on the fen.

Rhamphus pulicarius (Herbst). One specimen swept from the fen, Lough Goller.

Despite the dangers of drawing conclusions from such a short period spent in the field a few comments may be given on species which were not worked for, and also on those which it was expected would be found. Before commenting on these, something must be said about birch and oakwoods in the Burren area. Very little birch was worked, only a few small trees at Poulavallan "II". Webb (1962) notes fairly extensive birchwoods near Gort, in the extreme east of the Burren. These woods would repay a visit, as a number of weevils feed on birch. The oakwood at Lough Goller was remarkable for the undamaged state of its foliage and apparent absence of weevils; in England a lowland oakwood without weevils is unthinkable. The apparent absence of these insects from the Lough Goller wood must presumably be attributed to its isolation. The almost complete absence of oak from the Burren area is noted by Webb (1962).

Species of weevil which were not found, but would have been expected to occur at some of the sites include several species of *Sitona*, especially *S. lineatus* (L.), which is common in Ireland (Johnson & Halbert, 1902). The prevalence of *S. striatellus* and absence of many other species was unexpected. *Strophosomus melanogrammus* (Forst.) (*coryli* (L.)) is a common inhabitant of trees and shrubs in England and Ireland. Its absence from hazel the commonest shrub in the Burren and one of the usual hosts of the adult beetles, was rather surprising.

LISTS OF OTHER INSECTS RECORDED

Because only small numbers of other insects were collected separate lists for Burren and other sites are not given. Instead the symbol * is used to indicate a specimen taken in the Burren area and † to distinguish one taken at a site outside the Burren.

ODONATA

COENAGRIIDAE

† *Coenagrion pulchellum* (v.d.Lind.).

LIBELLULIDAE

† *Libellula quadrimaculata* L. Single specimens of these two species were taken in the fen at Lough Goller.

ORTHOPTERA

TETRIGIDAE

* *Tetrix subulata* (L.).

* *T. undulata* (Sowerby) (*vittata* (Zett.)). Single specimens of each species at Mullagh More "I". Ragge (1965) states that neither species has previously been recorded from Co. Clare and that the only other Irish records of *T. subulata* are from N.E. Galway and (possibly) Limerick.

HEMIPTERA-HETEROPTERA

ACANTHOSOMATIDAE

* *Acanthosoma haemorrhoidale* (L.). Poulavallan "II", one beaten from hawthorn. Also recorded from Killinaboy and Lough Bunny (Lansbury, 1965).

SCUTELLARIDAE

* *Eurygaster testudinaria* (Geoff.). Mullagh More "I", a single specimen by general sweeping near the turlough. Not recorded from Co. Clare by Halbert (1935).

TINGIDAE

* *Tingis cardui* (L.). Murroogh, three examples shaken from *Cirsium vulgare* at a roadside.

CIMICIDAE

* *Anthocoris confusus* Reut. Single specimens at Mullagh More "I" and "II" by general beating.

MIRIDAE

* *Orthops cervinus* (H.-S.). One beaten from hawthorn, Poulavallan "II".

† *Heterocordylus tibialis* (Hahn). One beaten from *Ulex europaeus*, Ballynalacken Castle.

* *Lygus wagneri* Remane. One shaken from *Cirsium vulgare*, near Carran, 12.vi.65.

† *Capsus ater* (L.). A single specimen by general sweeping in the meadow, Ballynalacken Castle.

* *Stenodema calcaratum* (Fall.). One, by general sweeping near the turlough, Mullagh More "I".

* *S. holsatum* (F.). One, by general sweeping, Poulavallan "II". Recorded from the Burren (Roughan House) by Lansbury (1965).

SALDIDAE

* *Saldula saltatoria* (L.). Two swept near the turlough at Mullagh More "I". Recorded from the Burren (Lough Inchiquin) by Lansbury (1965).

VELIIDAE

* *Velia caprai* Tamanini. One female with presumed larvae on a very small roadside stream at Poulavallan "I". Recorded from several localities in N.W. Clare, but not commonly, by Lansbury (1965).

GERRIDAE

* *Gerris costai* (H.-S.). Two males at Poulavallan "I". This species is not recorded from the Burren by Lansbury (1965). The habitat is a small stream flowing under the road.

* *G. lacustris* (L.). Rather common on small pools around the edge of the turlough, Mullagh More "I". "Common on some [Burren] lakes" (Lansbury, 1965).

LEPIDOPTERA

Most of the few butterflies listed were sight records, but no doubtful records are included.

SATYRIDAE

- † *Pararge aegeria* (L.). One at Ballynalacken Castle.
- †* *P. megera* (L.). Seen at Mullagh More "I", Lough Goller and Lahinch.
- † *Coenonympha pamphilus* (L.). Seen at Lahinch.
- † *C. tullia* (Müll.). A single example flying over the bog at Lough Goller.

NYMPHALIDAE

- † *Euphydryas aurinia* (Rott.). Several specimens flying over the bog at Lough Goller.

LYCAENIDAE

- †* *Cupido minimus* (Fuess.). Poulsallagh, one shaken from *Cirsium vulgare* in the evening. Lahinch, common on the sand hills, and eggs on the florets of the foodplant, *Anthyllis vulneraria* L.
- †* *Polyommatus icarus* (Rott.). Seen at Murroogh and Lahinch.
- † *Lycaena phleas* (L.). Lough Goller, flying over the bog near *Rumex acetosella*.

PIERIDAE

- * *Leptidea sinapis* (L.). One observed flying by a roadside near Mullagh More "II".
- † *Pieris napi* (L.). Seen at Lough Goller.
- † *Anthocharis cardamines* (L.). Also seen at Lough Goller.
- * *Gonepteryx rhamni* (L.). One seen at Mullagh More "II". Huggins (1957), in writing of this species, stated that he had never seen any buckthorn (the foodplant) in the rocky part of the Burren, and implied that the butterfly might breed at some distance. However, as noted by Webb (1962), both *Rhamnus catharticus* L. and *Frangula alnus* Mill. occur in the Burren, the latter as a prostrate form. Plants of this prostrate form grow in crevices in the pavement near where *G. rhamni* was seen at Mullagh More.

HESPERIIDAE

- * *Erynnis tages* (L.). One or two seen at Mullagh More "I".

ZYGAENIDAE

- * *Zygaena purpuralis* (Bruenn.). Common at Murroogh, a well-known locality for the species (Mere et al., 1962).

COLEOPTERA

CARABIDAE

- * *Carabus granulatus* L. One at Mullagh More " I ".
- * *Notiophilus biguttatus* (F.). Poulavallan " II ", one specimen.
- * *Clivina fossor* (L.). One specimen on mud under trees at Poulavallan " II ".
- * *Bembidion harpaloides* Serville. Mullagh More " II ", a singleton.
- * *Badister bipustulatus* (F.). Black Head, one under a stone.
- * *Harpalus latus* (L.). Black Head, one under a stone.
- * *H. quadripunctatus* Dejean. Also one at Black Head under a stone. This species has a northern distribution in the British Isles, being recorded for Northumberland and Scotland (Moore, 1957). It is recorded from Co. Wicklow by Johnson & Halbert (1902) but was not found during the Clare Island Survey (Johnson & Halbert, 1912).
- * *Amara aenea* (Deg.). Murroogh, one at the roots of grasses.
- * *Odontonyx rotundatus* (Payk.). Black Head, one under a stone.

ELATERIDAE

- *† *Adelocera murina* (L.). On the dunes at Murroogh and Liscannor.
- * *Athous haemorrhoidalis* (F.). One specimen at Black Head.
- *† *Corymbites cupreus* (F.). Rather common, by general beating, Poulavallan " II ", Caherconnell and Lough Goller. On *Calluna vulgaris* at Black Head.
- † *C. siaelandicus* (Müll.) (*tessellatus* (F.)). Two, by general sweeping, at Lough Goller.

DASCILLIDAE

- * *Dascillus cervinus* (L.). Poulavallan " II ", two, by general beating.

HELODIDAE

- * *Helodes minuta* (L.). By general beating, Poulavallan " I ".

GEOTRUPIDAE

- * *Geotrupes vernalis* (L.). Murroogh, two specimens on the dunes.

SCARABAEIDAE

- * *Onthophagus fracticornis* (Preyss). Murroogh, one on the dunes.

CHRYSOMELIDAE

- * *Donacia clavipes* F. Mullagh More "I", one specimen by general sweeping.
- *† *Plateumaris discolor* (Panz.). Poulavallan "I", in flowers of *Ranunculus repens*, and by general sweeping. Lough Goller, general sweeping in the fen.
- * *P. sericea* (L.). Mullagh More "I", by general sweeping, and in the flowers of *Menyanthes trifoliata* L.
- * *Lema lichenis* Voet. Caherconnell, swept from *Cirsium arvense*; Abbey Hill, by sweeping.
- *† *Gastrophysa viridula* (Deg.). Near Carran, at Poulavallan "I", and at Lisdoonvarna on *Rumex* sp.; Lough Goller, in the fen, also on *Rumex* sp.
- * *Phaedon cochleariae* (F.). Burren village, one by general sweeping.
- † *P. armoraciae* (L.). Lough Goller, two by sweeping on the fen.
- *† *Hydrothassa marginella* (L.). Swept from *Ranunculus repens* at Caherconnell, Lough Goller and Lisdoonvarna (12.vi.65).
- † *Prasocuris phellandrii* (L.). Lough Goller, one swept in the fen.
- * *Phyllodecta vulgatissima* (L.). Poulavallan "II", two beaten from sallow.
- * *Galerucella lineola* (F.). Mullagh More "I", by general sweeping; Deelin Beg, beaten from sallow.
- † *G. tenella* (L.) } Lough Goller, single specimens by general sweeping
 † *G. griseescens* (Joan.) } near the fen.
- † *Lochmaea capreae* (L.). Lough Goller, one beaten from sallow on the fen.
- † *Phyllotreta undulata* Kuts. Liscannor, one on the dunes by general sweeping.
- † *Aphthona caerulea* (Geoff.). Liscannor, swept from *Iris* sp. in the marsh behind the dunes.
- * *Haltica ericeti* (Allard). Poulavallan "I", a single specimen by general sweeping.
- * *Crepidodera transversa* (Marsh.). Black Head and Poulavallan "I" by sweeping *Cirsium* spp.
- † *Chalcoides aurea* (Geoff.). Lough Goller, one by beating sallow on the fen.
- † *Sphaeroderma testaceum* (F.). Liscannor, one on the dunes by general sweeping.

HYMENOPTERA SYMPHYTA

ARGIDAE

- * *Arge ustulata* (L.). Poulavallan "II", one beaten from hawthorn.

TENTHREDINIDAE

- * *Stromboceros delicatulus* (Fall.) }
 * *Melisandra cinereipes* (F.) } Poulavallan "II", single specimens.
- *† *Selandria serva* (F.). Single examples at Mullagh More "I" and Liscannor.
- * *Dolerus picipes* Klug. Single specimens at Mullagh More "I", Pousallagh and Poulavallan "II".
- * *D. aeneus* Hartig. Single examples at Mullagh More "I" and Poulavallan "I" and two at Pousallagh.
- * *Empria liturata* (Gmel.). One at Black Head.
- * *Allantus cinctus* (L.). Caherconnell, one specimen.
- * *Monophadnoides tenuicornis* (Klug). Poulavallan "II", one specimen.
- *† *Eutomostethus luteiventris* (Klug). One specimen at Poulavallan "I" and two at Lough Goller.
- * *Rhogogaster viridis* (L.). One near Carran, and a pair at Poulavallan "I".
- * *Tenthredo mesomelas* L. Single examples at Caherconnell and Poulavallan "II".
- * *T. acerrima* Benson. Mullagh More "I", four specimens; and one each at Poulavallan "I", Caherconnell and Black Head.
- *† *T. atra* L. Single examples near Carran and at Poulavallan "II", two at Lough Goller.
- † *T. moniliata* Klug. Lough Goller, one specimen.
- † *T. ferruginea* Schrank. Lahinch, one on the sandhills.
- † *T. livida* L. Lough Goller, a single example.
- * *T. balteata* Klug. Two at Poulavallan "II".
- * *Pachyprotasis antennata* (Lep.). Single examples at Caherconnell and Poulavallan "II".
- *† *Tenthredopsis coquebertii* (Klug). Two specimens at Pousallagh and Black Head and single specimens at Mullagh More "I", Poulavallan "I" and Liscannor.
- * *Cladius pectinicornis* (L.). A single example at Mullagh More "I".
- * *Hoplocampa pectoralis* Thoms. One beaten from hawthorn, Caherconnell.
- * *Dineura stilata* (Klug). Two beaten from hawthorn, Poulavallan "II".
- † *Pachynematus obductus* (Hartig). Lahinch, one on the sandhills,

DISCUSSION

The weevil fauna of Ireland may be regarded as an impoverished remnant of the European fauna. Some 2,500 species are known from France (Hoffmann, 1950-58); 530 from Great Britain and 220 from Ireland. It is not surprising, therefore, that only 63 species are now recorded from the 15 sites in N.-W. Co. Clare. An interesting comparison may perhaps be made with Shropshire, where Morris (1966a) recorded 99 species at 16 sites during visits of similar duration to those in Co. Clare and at the same time of the year. Shropshire is an inland county, so that maritime species which occur in Clare are not found, yet the number recorded is greater by 36 species.

In Shropshire the largest totals of weevils were recorded from sites on limestone and other basic soils, but there were some sites, including "mosses" and upland moors, where very few species were recorded. In contrast, the totals from sites in Clare are more uniform with the smallest numbers of species coming, not surprisingly, from those sites which were least worked, Deelin Beg and Burren village. This similarity probably reflects the fact that most of the sites are on limestone pavement. The impression is that the weevil faunas at these sites are rather similar and that the apparent differences can be related to the presence of scrub woodland and turloughs and the proximity of the sea.

Poulsallagh is the most outstanding of the Burren sites, especially when it is remembered that no trees occur there, but it was also one of the best worked areas (see table). Lough Goller was the site most productive of species which is outside the Burren area but the habitats of both fen and bog are unlike any which were worked elsewhere in Co. Clare (see table).

TABLE

Burren Sites	No. species recorded	No. recorded at no other site
Mullagh More I	12	1
II	14	1
Poulsallagh	17	4
Murroogh	13	3
Black Head	7	0
Poulavallan I	9	0
II	7	1
Deelin Beg	5	2
Caherconnell	14	0
Burren village	5	2
Abbey Hill (1959)	6	1
<u>Sites outside the Burren</u>		
Ballynalacken Castle	10	1
Lough Goller	13	5
Liscannor	8	0
Lahinch	7	1

In areas with a rich flora it is important to assess the relationship of any group of phytophagous insects to the characteristic plants of the area. At the present time, there appears to be no species of weevil associated with any plant which can be considered a speciality of the Burren. The foodplants of the weevils recorded, species of *Urtica*, *Rumex*, *Trifolium*, *Vicia*, *Lotus*, *Plantago*, *Cirsium*, *Viola*, *Salix*, *Corylus*, *Calluna* etc. are all common and widely distributed in the British Isles, and the nearest to a speciality of the Burren is *Campanula rotundifolia* (host of *Miarus campanulae*), and then only so far as Ireland is concerned. *Anthonomus brunneipennis* was recorded from *Potentilla fruticosa*, but this plant can only be regarded as additional to other rosaceous hosts. A number of characteristic plants of the Burren, *Dryas octopetala* L., *Geranium sanguineum* L., *P. fruticosa*, *Helianthemum canum* (L.) Baumg., and others, were worked without results.

Most of the weevils found are common and widespread in the British Isles, but a few species give the area a special interest. *Otiorrhynchus arcticus* is a northern species (compare the carabid *Harpalus quadripunctatus*, Lepidoptera such as *Zygaena purpuralis* and plants such as *Dryas*, although this last has an arctic-alpine distribution). *Apion dentirostre* is a "lusitanian" species. *Sitona lineellus* is not known in south-eastern England. *Anthonomus brunneipennis* may not occur, commonly at least, in southern England. The status of *Ceuthorhynchus unguicularis* in Britain will not be known until it has been worked for in other localities. When the fauna of the Burren, and western Ireland generally, has been better worked, it may be easier to classify its components.

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NOTE ADDED IN THE PRESS

A representative set of weevils and other insects collected has been placed in the National Museum of Ireland. Apart from a very few specimens of Orthoptera and Hymenoptera-Symphyta retained in the British Museum (Natural History) the remaining material is in my own collection.

M.G.M.

A



B



FIG. A—Plant of *Cirsium vulgare* (Savi) Ten. at Poulsallagh, on which *Apion denticostre* Gerst. was taken.

FIG. B—Stony limestone pavement at Poulsallagh, habitat of *Otiorrhynchus arcticus* (O.Fab.).

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CORRIGENDA

- Page 356, line 10; page 360, line 8. *For* CURCULIONOIDEA *read* CURCULIONIDAE.
- Page 410, par. 9, line 2. *For* female *read* females.
- Page 422, heading Table 6. *For* average length . . . *read* average range length . . .