



IRISH FISHERIES INVESTIGATIONS

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No. 24 (1984)

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JAMES P. O'CONNOR

and

EDWARD J. WISE

**OBSERVATIONS ON THE TRICHOPTERA OF THE
KILLARNEY LAKES, CO. KERRY, IRELAND.**

Observations on the Trichoptera of the Killarney Lakes, Co. Kerry, Ireland

by

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ABSTRACT

Trichoptera were obtained in two separate surveys of the Killarney Lakes. During eutrophication investigations, larvae were collected at twelve littoral stations once a month for a year. As part of a special study of the Irish Trichoptera, larvae, pupae and imagines were collected extensively using both semiquantitative and qualitative techniques. The combined results of these two surveys demonstrated that the lakes possessed a rich and interesting trichopterous fauna. Altogether 71 species were recorded, representing half the known Irish Trichoptera. The Upper Lake had the poorest fauna with 29 species. By contrast, 54 and 58 species were recorded from Muckcross Lake and Lough Leane respectively. A total of six species new to Ireland was discovered. Species of particular interest on the grounds of rarity or occurrence in lentic rather than lotic habitats included *Apatania auricula* (Forsslund), *Athripsodes albifrons* (Curtis) and *Setodes argentipunctellus* McLachlan.

INTRODUCTION

The Killarney Lakes have been classified as an area of international scientific importance (Anon. 1981). Little is known however about their trichopterous faunas. Adult Trichoptera have been collected in the Killarney district since at least the early 1860's (McLachlan, 1864) but the first published reference to a Killarney lake appears to be that of McLachlan (1877-78). Although several entomologists have collected adults on the lakes, they concentrated on certain specific areas of Lough Leane and Muckcross Lake and apparently neglected the Upper Lake (King and Halbert, 1910). The only species recorded from the last water-body was *Limnephilus auricula* Curtis (Beirne, 1939). No information was available on the larval populations of the lakes. In consequence, the main aim of this paper is to provide base-line data on the Trichoptera of all three lakes. Such data are important for example in eutrophication and fish studies and are a necessary prerequisite for the development of effective conservation policies for the group in an area which lies within a National Park.

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THE STUDY AREA

The three Killarney lakes are interconnected but due to the complex geology of the catchment area, they differ greatly in their topography and water chemistry. The Upper Lake is entirely situated on Old Red Sandstone. Muckross (Middle) Lake lies almost entirely on Old Red Sandstone but there is a small area of limestone near the north-eastern shore. The south-western part of Lough Leane (Lower Lake) is also on Old Sandstone. By contrast, the north-eastern area is on a bedrock of Carboniferous limestone. The principal physical and limnological data are summarised in Table 1.

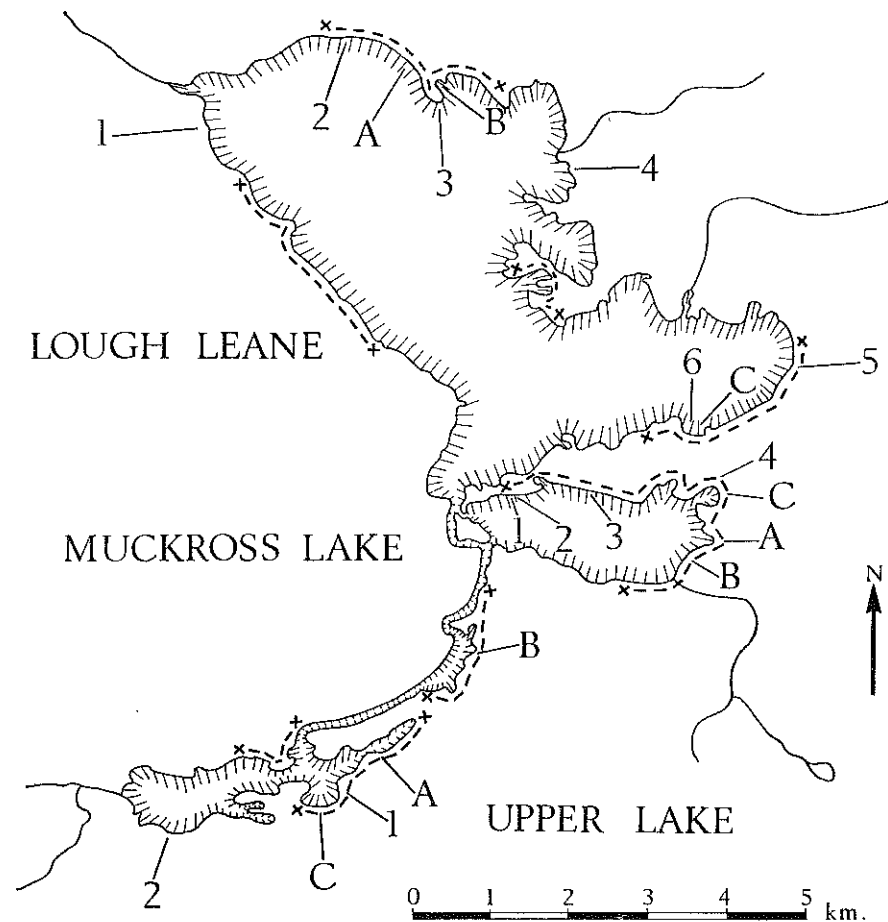


FIGURE 1. The Killarney Lakes: location of sampling stations. 1 etc. Larval collection sites—Eutrophication Study. A etc. Larval/pupal collection sites—Special Study (semi-quantitative). X — — X: Imaginal collection areas—Special Study.

MATERIALS AND METHODS

Material was obtained in two separate surveys. The first by Wise was undertaken during eutrophication investigations of the three lakes. Larvae were collected in the littoral zone each month from October 1971 to September 1972. One sample was taken for a fixed time (5 minutes) at each selected station once a month using a rake and square framed net with 25cm sides. The mesh size was 10 meshes per cm. The procedure adopted was similar to that of Macan and Maudsley (1968) and forms a basis for relative comparison. Descriptions of the sampling stations and their locations are given in Table 2 and Fig. 1. The total numbers of caddis larvae collected at each station are given in Table 3. Imagines from floating and submerged insect emergence traps on Muckross Lake and Lough Leane were made available for determination during the second study. The traps were cone-shaped with a transparent detachable container on the top.

During a special study of the Irish Trichoptera by O'Connor, larvae, pupae and imagines were obtained from the lakes between September 1972 and May 1974. Extensive qualitative collections were made throughout this period. Adults were caught along the shore-lines in Heath portable light-traps and by sweeping vegetation etc. with a hand-net. Specimens were also obtained by searching such suitable hiding places as crevices in walls of boat houses or in rock faces. Fly-killing aerosol sprays were found to be useful for dislodging adults from their hiding places (O'Connor, 1978a). Larvae and pupae were searched for by hand or net in the littoral region. The stomach contents of brown trout (*Salmo trutta* L.) were examined. In addition, larvae and pupae were collected on a semi-quantitative basis at three sites on each lake in April 1973. They were taken with a rake and net as described above. However, a fixed area (15m x 0.25m) was covered to compensate for varying substrata. The sites consisted on each lake of an exposed rocky shore, a sheltered rocky shore and a reed bed. Since some of these sampling sites differ from those of the first study, they are indicated by letters in Fig. 1.

As part of his taxonomic studies on larval Trichoptera, Dr. I. D. Wallace collected specimens in the lakes. He has kindly made available his results for inclusion by us.

Voucher specimens of Trichoptera recorded in this paper have been deposited in the National Museum of Ireland.

RESULTS

The combined results of the two surveys are given (Appendix). Nomenclature follows that of Kimmins (1966) and Morse and Wallace (1976). Species noted only by King and Halbert (1910) and by Beirne (1939) are included. Some of the localities are vague in King and Halbert and we have only used records from Dinish and Muckross on Muckross Lake, and Glena and Ross Castle on Lough Leane.

To date 71 species have been recorded from the lakes, a total which represents half of the known Irish Trichoptera (O'Connor, unpublished data). However this figure is artificially high. Some of the older records and some of our own are based only on imaginal material and the relevant larvae and pupae have not been found. Thus *Chimarra marginata* (L.), *Neureclipsis bimaculata* (L.), *Polycentropus kingi* McLachlan, *Silo pallipes* (Fabricius) and *S. nigricornis* (Pictet) probably flew from nearby lotic habitats where their larvae are known to occur. The *Beraea* too may inhabit nearby flowing water or marshy areas. Similarly *Limnephilus stigma* Curtis, *L. elegans* Curtis, *L. affinis* Curtis, *L. centralis* Curtis, *L. sparsus* Curtis and *L. auricula* probably mainly breed in small pools and marshy areas near the lakes but larvae could be washed into the main lakes during floods.

The presence of *Agapetus ochripes* Curtis in Lough Leane is possible. Adults were taken in a reed bed (V 966866) beside a site with *Agapetus* larvae. In our experience, *Agapetus* larvae are difficult to identify satisfactorily to species. In the present instance, no confirmatory pupae were discovered and the record must remain tentative. Although the authors found no larvae of *Potamophylax latipennis* (Curtis), Wallace (*in litt.*) found larvae in Muckross Lake at the mouth of Torc Stream. This species has been previously obtained on lake shores (O'Connor and Bracken, 1979; Wallace, 1980). Elsewhere in the British Isles, *Plectrocnemia conspersa* (Curtis) has been recorded from upland pools and lakes (O'Connor and Bracken, 1979; Edington and Hildrew, 1981).

Larvae of the normally lotic *Glossosoma boltoni* Curtis, *Hydropsyche pellucidula* (Curtis), *Odonotocorum albicorne* (Scopoli) and *Athripsodes albifrons* (Curtis) were found. However, the numbers taken were often low. The populations of *H. pellucidula* and *O. albicorne* may require reinforcement from neighbouring rivers and streams. The first species was confined to the area of Lough Leane where the River Laune exits (station 1), a river in which the larvae were abundant. *O. albicorne* occurred near the inflowing Torc stream on Muckcross Lake (V 960848). The remaining species were more widespread on exposed shores (Table 3).

Altogether, 54 and 58 species have been recorded from Muckcross Lake and Lough Leane respectively. The Upper Lake possesses the poorest fauna with 29 species. A direct comparison between the faunas of the lakes is hampered by the inadequate number of larval sampling stations established on the Upper and Muckcross Lakes during the eutrophication study. Such a limitation was imposed by the topographical and geological characteristics of the water-bodies which in many areas made quantitative sampling difficult or impossible. However the existing data when used with those from the second study do allow certain observations to be made. Trichoptera appear to be scarcest in the Upper Lake. Diversity and density increases from the Upper Lake to Lough Leane. This is probably a reflection of their respective productive capabilities.

The two programmes complemented one another. The imaginal and pupal material was invaluable for confirming the larval identifications. In one particular instance, some common larvae were thought to be *Limnephilus extricatus* McLachlan but no adults were taken. By contrast, adults of *Mesophylax impunctatus* McLachlan were abundant but we were unable to find its larvae. Eventually the original larvae proved to be those of *M. impunctatus* and were subsequently described (Hiley, 1976). The second study contributed extra data on larval distributions. The most noteworthy addition was *Apatania auricula* (Forsslund) which was found mainly on exposed shorelines in the three lakes. In several instances, larvae were recorded for the first time from particular lakes (Table 4). These additions may be attributed to the prevailing low water conditions during April 1973 and to the far-ranging qualitative collections. The problems inherent in producing quantitative information by contrast, restricted the area which could be sampled.

Because of the organism/degree of exposure to wave action/substrate relationship, distinct community types were evident. Thus *Agapetus fuscipes* Curtis, *Tinodes waeneri* (L.), *M. impunctatus*, *A. albifrons* and *Sericostoma personatum* (Spence) belong mainly to the exposed rocky community. On the other hand, *Holocentropus dubius* (Rambur), *Limnephilus flavicornis* (Fabricius)/*L. marmoratus* Curtis group, *L. lunatus* Curtis and *Triaenodes bicolor* (Curtis) are found in sheltered areas.

Large hatches of the following species were observed:— *A. fuscipes*, *Polycentropus flavomaculatus* (Pictet), *P. irroratus* (Curtis), *Cyrnus trimaculatus* (Curtis), *Ecnomus tenellus* (Rambur), *T. waeneri*, *Agraylea multipunctata* Curtis, *Hydroptila angulata* Mosely, *Orthotrichia angustella* (McLachlan), *Oxyethira flavicornis* (Pictet), *A. auricula*, *L. marmoratus*, *L. lunatus*, *M. impunctatus*, *A. albifrons*, *Ceraclea nigronevosa* (Curtis), *C. cinereus* (Curtis), *C. dissimilis* (Stephens), *Mystacides azurea* (L.), *M. longicornis* (L.), *Oecetis lacustris* (Pictet), *Goera pilosa* (Fabricius), *Lepidostoma hirtum* (Fabricius) and *S. personatum*. Other species were rarely taken. Only single specimens of *L. stigma* (1♂: V 918817), *L. elegans* (1♂: V 964857) and *Beraeodes minutus* (L.) (1 larva) were obtained. As previously mentioned, both *L. stigma* and *L. elegans* are unlikely to have bred in the lake. The last named species was collected in a grab from an area in the Upper Lake near the Long Range (V 934838). Searches for further specimens have been fruitless. Two larvae of *Anabolia nervosa* (Curtis) were discovered in the stomach of a brown trout from Lough Leane. There have been no other records. Only two adults of *Ceraclea annulicornis* (Stephens) were seen, one originated in a trout stomach from Lough Leane. However, larvae were collected in the same lake (Table 3).

DISCUSSION

King and Halbert (1910) note the occurrence of 42 species on Muckcross and Lough Leane but *Wormaldia occipitalis* (Pictet) must be deleted from their list. Its identity is now uncertain because of taxonomic difficulties (see McLachlan, 1874-84; Mosely, 1939; Kimmins, 1965). In addition, the genus is a lotic one (Kimmins, 1965). The present investigations add greatly to their total and show that the Killarney Lakes contain a rich and interesting trichopteran fauna. The collected material included the first Irish records of *Hydroptila pulchricornis* Pictet, *O. angustella*, *O. costalis* (Curtis), *L. elegans*, *M. impunctatus* and *B. minutus*. All these species have now been obtained elsewhere in Ireland (O'Connor, 1978b; Wallace *et al.*, in prep.).

The presence of *M. impunctatus* is notable. In Great Britain, it is considered rare and local (Mosely, 1939) but may be common as at Malham Tarn, Yorkshire (Holmes, 1963). Other species worthy of mention are as follows:— *Oxyethira sagittifera* Ris was first reported by Mosely (1927) from Co. Galway. The Killarney Lakes are a second Irish locality. *A. auricula* was first recorded in the Killarney area (Morton, 1887) when it was misidentified as *A. fimbriata* Pictet (Kimmins, 1951). Apparently it has not been previously collected in the lakes but instead from four neighbouring areas (King and Halbert, 1910). The species is unknown in Great Britain (Crichton, 1971). It has a curious European distribution viz. Finland, Sweden, Latvia and Poland, and it may be a glacial relict in Ireland (Lepneva, 1966; O'Connor, 1978b). *Halesus digitatus* (Schrank) was first obtained in Ireland by Beirne (1939). Fahy (1972) refers to the species as a new Irish record but appears to have identified it from larval material only. However its larvae cannot yet be separated from those of *H. radiatus* (Curtis) with complete confidence (Garside, 1979; Wallace, 1980). The Muckcross Lake record is therefore of interest.

C. annulicornis is common and widely distributed in Great Britain (Mosely, 1939; Brindle, 1962). However it is a riverine species only once found in a lake (Wallace, 1976). In Ireland, it has only been taken in four counties (King and Halbert, 1910). The Killarney Lakes provide the only recent record of the species. *Setodes argentipunctellus* McLachlan is restricted to the Killarney Lakes in this country (King and Halbert, 1910). Part of the type series was captured near Muckcross Abbey on 18 August, 1877 (McLachlan, 1877-78). Elsewhere in the British Isles, it has also a limited distribution being found in the lakes of Windermere and Coniston, Cumberland, and in Mochrum Loch, Wigtownshire. It is extremely local being abundant where found but absent from neighbouring lochs (Morton, 1899; Kimmins, 1943; Wallace, 1976, 1981). This discontinuous distribution may indicate that *S. argentipunctellus* is another glacial relict. Alternatively, it may have specialised ecological requirements yet to be discovered. At present, little is known about the influence of such factors on caddis distribution in this country.

Certain lentic caddisflies common in other Irish lakes did not occur in the Killarney Lakes. The most interesting one is *Apatania wallengreni* McLachlan which inhabits Lough Ree, Co. Westmeath and Lough Corrib, Co. Galway (O'Connor and Norton, 1977, 1978; O'Connor, 1978c, 1979). In the Killarney Lakes, *A. auricula* appears to occupy the same niche. Two other species also in Lough Ree and other Irish lakes, *Metalype fragilis* (Pictet) and *Tinodes maculicornis* (Pictet), were similarly absent (O'Connor and Wise, 1980; O'Connor and O'Connor, 1982). Lough Ree for example has a higher calcium content (29.9 p.p.m.) than the Killarney Lakes (1.65-7.0 p.p.m.) and this factor appears to influence their distributions (O'Connor and Norton, 1978; Bracken, *pers. comm.*). *Agrypnia pagetana* Curtis, *Limnephilus fuscinervis* (Zetterstedt), *L. nigriceps* (Zetterstedt) and *Molanna palpata* McLachlan were also missing. These Trichoptera are widespread and frequently abundant in the lakes of Co. Cavan (O'Connor, unpublished data). The factors responsible for the above dissimilarities are as yet unknown.

The female adult record of *Cyrnus insolutus* McLachlan from the Upper Lake (O'Connor, 1978b) has proved to be an aberrant *C. trimaculatus* (Curtis) using Klingstedt (1937). In Ireland, this species is now only known to occur in Lough Derrygeeha, Co. Clare (O'Connor, 1977).

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Table 1. Limnological data for Killarney lakes (from Bracken et al, 1977).

	Lough Leane	Muckross Lake	Upper Lake
Area (Hectares)	2023	275.2	174
Axis	SE-NW	E-W	W/SW-E/NE
Maximum length (Km)	8.46	3.05	3.83
Maximum width (Km)	4.83	1.38	1.01
Shore length (Km)	29.6	10.0	14.4
Maximum depth (M)	charted 64.05	uncharted but at least 65.3	uncharted but at least 40
Elevation (M)	20.1	20.4	21.3
Trophic status	Meso-eutrophic (Mesotrophic)	Oligo-mesotrophic (Oligotrophic)	Oligo-mesotrophic (Oligotrophic)
Pollution status	Localised areas of enrichment from sewage tending to promote eutrophic conditions.	Generally unpolluted but Dundag Bay has experienced enrichment from sewage.	Unpolluted
Average Specific Conductivity (Micro-mhos)	95	75	70

Table 2. Descriptions of the quantitative larval sampling stations (Eutrophication Study, October 1971-September 1972).

LOUGH LEANE

- 1, Laune Exit Shore (V899908) A moderately exposed rocky shore in proximity to the River Laune outflow. Substrate of stones interspersed with large boulders. *Littorella uniflora* (L.) Aschers well established.
- 2, Fossa Shore (V 915916) An exposed rocky shore. Substrate of rock "rubble". In summer, excessive growths of epilithic algae caused by inshore nutrient loading.
- 3, Mahoney's Point (V 928908) Exposed rocky headland. Substrate of coarse "rubble" and large boulders. In summer, heavy growth of periphyton due to nutrient enrichment.
- 4, Victoria Bay (V 946900) A somewhat sheltered bay with a substrate predominantly of sand. Sparse stand of *Phragmites australis* (Cav.) Steud. In summer, there is also an excessive growth of littoral algae.
- 5, Castlelough Bay (V 975880) At the exposed end of a bay. The substrate is sand. There is a narrow stony margin.
- 6, Bog Bay (V 963867) A small deeply indented area with *Phragmites* and *Nymphaea alba* L. Substrate of fine organic litter and debris derived from decomposing plants. Due to mechanical excavation in July 1972, samples were taken subsequently in an adjacent reedbed.

MUCKROSS LAKE

- 1, Brickeen Bridge (V 937858) A moderately exposed rocky headland with a steep gradient. Substrate of large angular rock fragments.
- 2, Brickeen Bridge (V 937858) A sheltered inlet with a growth of *Phragmites*. Stony substrate overlain by silt and organic litter.
- 3, Coleen Bawn (V 950859) An exposed shore comprising a flat area of sand interspersed by large bare stones and a narrow marginal belt of wave-washed stones.
- 4, Dundag Bay (V 965858) A comparatively large bay, partially sheltered. Substrate predominantly sand but *Phragmites*, *Littorella* and stones also present. Received discharges of untreated sewage.

UPPER LAKE

- 1, Stag Is. Bay (V 893817) A sheltered bay containing a substrate of peat and fine organic material. Marginal growth of *Juncus bulbosus* L. and *Carex* spp.
- 2, South West Shore (V 918819) A moderately exposed boggy shore. Substrate of peat and organic litter with occasional stones. Marginal stand of *Carex* spp.

Table 3. Relative abundance of larval Trichoptera in the littoral zone of the Killarney Lakes. The numbers represent the annual totals of larvae taken at monthly intervals in the Eutrophication Study between October 1971 and September 1972. They are derived from one 5 minute sample collected with a rake and 25cm net (mesh: 10 per cm) at each station each month by Wise.

species	LOUGH LEANE						MUCKROSS L.				UPPER L.	
	1	2	3	4	5	6	1	2	3	4	1	2
<i>Glossoma boltoni</i>	1	1	3	—	—	—	—	—	—	—	—	—
<i>Agapetus fuscipes</i>	31	26	47	—	—	—	—	—	1	7	—	—
<i>Polycentropus flavo-maculatus</i>	29	10	43	1	3	3	23	—	1	17	1	—
<i>P. irroratus</i>	—	—	—	—	—	—	—	—	—	—	7	2
<i>Holocentropus dubius</i>	—	—	1	—	—	17	—	—	—	—	6	—
<i>H. picicornis</i>	—	1	—	—	—	—	—	—	—	—	4	2
<i>Ecnomus tenellus</i>	5	1	2	4	—	—	—	—	—	12	—	—
<i>Tinodes waeneri</i>	33	58	79	—	1	—	2	—	—	1	—	—
<i>Hydropsyche pellucidula</i>	3	—	—	—	—	—	—	—	—	—	—	—
<i>Agraylea multipunctata</i>	1	15	9	25	87	1	—	—	—	18	—	—
Hydroptilidae spp.	—	—	—	3	26	—	—	1	—	1	—	—
<i>Phryganea grandis</i>	—	—	—	3	—	1	—	—	—	—	1	1
<i>P. striata</i>	—	—	—	—	—	1	—	—	—	—	—	—
<i>P. varia</i>	—	—	—	2	—	2	—	—	—	—	—	—
<i>Limnephilus flavicornis/marmoratus</i> group	—	—	—	21	—	668	6	6	1	58	10	29
<i>L. lunatus</i>	10	1	—	17	—	11	—	5	—	3	—	1
<i>Mesophylax impunctatus</i>	1	—	—	—	—	—	37	9	—	—	—	—
<i>Ceraclea nigronervosa</i>	—	2	1	—	—	—	—	—	—	—	—	—
<i>C. fulva</i>	—	2	—	—	—	—	—	—	—	—	—	—
<i>C. annulicornis</i>	—	2	3	—	—	—	—	—	—	—	—	—
<i>C. dissimilis</i>	—	1	—	—	—	—	—	—	—	—	—	—
<i>Athripsodes cinereus</i>	1	10	8	1	—	—	—	—	1	1	1	—
<i>A. albifrons</i>	4	6	7	—	—	—	—	—	—	—	—	—
<i>Mystacides azurea</i>	7	—	—	2	—	2	—	6	—	—	1	2
<i>M. longicornis</i>	12	—	—	6	—	—	—	—	—	—	2	3
<i>Triaenodes bicolor</i>	—	—	—	—	—	7	—	—	—	—	—	—
<i>Oecetis furva/testacea</i> grp.	—	—	—	—	1	—	—	1	—	—	—	—
<i>Goera pilosa</i>	18	—	4	4	2	—	—	—	—	—	—	—
<i>Lepidostoma hirtum</i>	358	5	28	14	4	5	—	2	2	1	—	—
<i>Sericostoma personatum</i>	16	5	18	—	2	—	—	—	3	—	—	—

Table 4. Selected larval data from the Special Study of O'Connor. Only data complementary to that of the Eutrophication Study have been included. Totals are the number of specimens collected in 15 one-metre collections on each shore line, April 1973. A—exposed rocky shore; B—sheltered rocky shore; C—reed bed.

species	LOUGH LEANE			MUCKROSS LAKE			UPPER LAKE		
	A	B	C	A	B	C	A	B	C
<i>Agapetus fuscipes</i>	35	247	1	36	17	—	—	—	—
<i>Holocentropus dubius</i>	—	—	—	—	2	1	3	2	—
<i>H. picicornis</i>	—	—	—	—	—	5	—	1	—
<i>Cyrnus trimaculatus</i>	—	—	—	—	—	—	1	1	—
<i>Tinodes waeneri</i>	5	2	—	—	—	—	4	—	—
<i>Agraylea multipunctata</i>	—	—	4	—	—	—	—	9	—
<i>Hydroptila</i> spp.	26	—	—	—	2	—	—	—	—
<i>Oxyethira</i> spp.	—	—	—	3	—	—	1	—	—
<i>Apatania auricula</i>	10	7	4	1	—	—	14	1	—
<i>Limnephilus flavicornis/marmoratus</i> group	—	—	5	—	—	19	2	—	5
<i>L. lunatus</i>	—	—	26	—	4	45	—	—	—
<i>L. bipunctatus/sparsus</i> group	1	—	—	—	—	—	—	—	—
<i>L. vittatus</i>	—	—	1	—	—	—	—	—	—
<i>Halesus</i> sp.	—	—	—	—	1	1	—	—	—
<i>Mesophylax impunctatus</i>	1	2	—	16	5	—	—	—	1
<i>Triaenodes bicolor</i>	—	—	1	—	—	13	—	—	—
<i>Oecetis</i> sp.	—	—	—	—	—	—	1	3	—
<i>Setodes argentipunctellus</i>	—	—	—	1	—	—	—	—	—
<i>Goera pilosa</i>	—	79	—	—	—	—	—	—	—
<i>Lepidostoma hirtum</i>	8	2	5	6	40	—	3	—	—
<i>Sericostoma personatum</i>	5	—	5	—	62	—	17	8	—

Appendix: A list of the Trichoptera of the Killarney Lakes. Abbreviations:— A: pupal/imaginal material collected; B: Beirne (1939); KH: King and Halbert (1910); L: larval material collected; W: larval record provided by Wallace.

<i>Glossosoma boltoni</i> Curtis	: Lough Leane (AL), Muckross Lake (A).
<i>Agapetus fuscipes</i> Curtis	: Lough Leane (AL), Muckross Lake (AL).
<i>A. ochripes</i> Curtis	: Lough Leane (A), Muckross Lake (A).
<i>Chimarra marginata</i> (L.)	: Lough Leane (KH), Muckross Lake (KH).
<i>Neureclipsis bimaculata</i> (L.)	: Muckross Lake (KH).
<i>Plectrocnemia conspersa</i> (Curtis)	: Upper Lake (A).
<i>Polycentropus flavomaculatus</i> (Pictet)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>P. irroratus</i> (Curtis)	: Lough Leane (A), Muckross Lake (AL), Upper Lake (AL).
<i>P. kingi</i> McL.	: Lough Leane (KH).
<i>Holocentropus dubius</i> (Rambur)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (L).
<i>H. picicornis</i> (Stephens)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (L).
<i>Cyrnus trimaculatus</i> (Curtis)	: Lough Leane (AL), Muckross Lake (A), Upper Lake (AL).
<i>Ecnomus tenellus</i> (Rambur)	: Lough Leane (AL), Muckross Lake (AL).
<i>Tinodes waeneri</i> (L.)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>Lype phaeopa</i> (Stephens)	: Lough Leane (AL), Muckross Lake (A), Upper Lake (A).
<i>Hydropsyche pellucidula</i> (Curtis)	: Lough Leane (L).
<i>Agraylea multipunctata</i> Curtis	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>Hydroptila sparsa</i> Curtis	: Lough Leane (KH).
<i>H. angulata</i> Mosely	: Lough Leane (A), Muckross Lake (A).
<i>H. tineoides</i> Dalman	: Lough Leane (A), Muckross Lake (A), Upper Lake (A).
<i>H. pulchricornis</i> Pictet	: Lough Leane (A).
<i>H. forcipata</i> (Eaton)	: Muckross Lake (A).
<i>Hydroptila</i> spp.	: Lough Leane (L), Muckross Lake (L), Upper Lake (L).
<i>Orthotrichia angustella</i> (McL.)	: Lough Leane (A), Muckross Lake (A).
<i>O. costalis</i> (Curtis)	: Lough Leane (A).
<i>O. angustella/costalis</i>	: Lough Leane (L).
<i>Oxyethira flavicornis</i> (Pictet)	: Lough Leane (A), Muckross Lake (A), Upper Lake (A).
<i>O. sagittifera</i> Ris	: Muckross Lake (A), Upper Lake (A).
<i>Oxyethira</i> spp.	: Lough Leane (L), Muckross Lake (L), Upper Lake (L).
<i>Phryganea grandis</i> L.	: Lough Leane (LKH), Muckross Lake (A), Upper Lake (L).
<i>P. striata</i> L.	: Lough Leane (L).
<i>P. varia</i> Fabr.	: Lough Leane (AL), Muckross Lake (A).
<i>Apatania auricula</i> (Forsslund)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>Limnephilus flavicornis</i> (Fabr.)	: Lough Leane (A), Muckross Lake (A), Upper Lake (A).

<i>L. marmoratus</i> Curtis	: Lough Leane (A), Muckross Lake (A), Upper Lake (A).
<i>L. flavicornis/marmoratus</i> group	: Lough Leane (L), Muckross Lake (L), Upper Lake (L).
<i>L. stigma</i> Curtis	: Upper Lake (A).
<i>L. lunatus</i> Curtis	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (L).
<i>L. elegans</i> Curtis	: Muckross Lake (A).
<i>L. affinis</i> Curtis	: Lough Leane (A).
<i>L. centralis</i> Curtis	: Lough Leane (KH).
<i>L. sparsus</i> Curtis	: Lough Leane (A).
<i>L. auricula</i> Curtis	: Lough Leane (A), Upper Lake (B).
<i>L. vittatus</i> (Fabr.)	: Lough Leane (AL).
<i>Glyphotaelius pellucidus</i> (Retzius)	: Muckross Lake (A).
<i>Anabolia nervosa</i> (Curtis)	: Lough Leane (L).
<i>Potamophylax latipennis</i> (Curtis)	: Lough Leane (A), Muckross Lake (AW).
<i>Halesus radiatus</i> (Curtis)	: Muckross Lake (A).
<i>H. digitatus</i> (Schrank)	: Muckross Lake (A).
<i>Halesus</i> sp.	: Muckross Lake (L).
<i>Mesophylax impunctatus</i> McL.	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>Beraea pullata</i> (Curtis)	: Lough Leane (A).
<i>B. maurus</i> (Curtis)	: Muckross Lake (KH).
<i>Beraeodes minutus</i> (L.)	: Upper Lake (L).
<i>Odontocerum albicorne</i> (Scopoli)	: Lough Leane (A), Muckross Lake (AL).
<i>Ceraclea nigronervosa</i> (Retzius)	: Lough Leane (AL), Muckross Lake (A), Upper Lake (A).
<i>C. fulva</i> (Rambur)	: Lough Leane (AL), Muckross Lake (AW).
<i>C. senilis</i> (Burmeister)	: Lough Leane (AW).
<i>C. annulicornis</i> (Stephens)	: Lough Leane (AL), Muckross Lake (A).
<i>C. dissimilis</i> (Stephens)	: Lough Leane (AL), Muckross Lake (AW).
<i>Athripsodes aterrimus</i> (Stephens)	: Lough Leane (AW), Muckross (A).
<i>A. cinereus</i> (Curtis)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>A. albifrons</i> (L.)	: Lough Leane (AL), Muckross Lake (A).
<i>Mystacides azurea</i> (L.)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>M. longicornis</i> (L.)	: Lough Leane (AL), Muckross Lake (A), Upper Lake (AL).
<i>Triaenodes bicolor</i> (Curtis)	: Lough Leane (AL), Muckross Lake (AL).
<i>Oecetis ochracea</i> (Curtis)	: Lough Leane (A), Muckross Lake (A).
<i>O. furva</i> (Rambur)	: Lough Leane (KH), Muckross Lake (AW).
<i>O. lacustris</i> (Pictet)	: Lough Leane (A), Muckross Lake (A), Upper Lake (A).
<i>O. testacea</i> (Curtis)	: Lough Leane (AW), Muckross Lake (AW), Upper Lake (A).
<i>O. furva/testacea</i> grp.	: Lough Leane (L), Muckross Lake (L).
<i>Setodes argentipunctellus</i> McL.	: Lough Leane (A), Muckross Lake (AL).
<i>Goera pilosa</i> (Fabr.)	: Lough Leane (AL), Muckross Lake (AW).
<i>Silo pallipes</i> (Fabr.)	: Muckross Lake (KH).
<i>S. nigricornis</i> (Pictet)	: Muckross Lake (KH).
<i>Lepidostoma hirtum</i> (Fabr.)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).
<i>Sericostoma personatum</i> (Spence)	: Lough Leane (AL), Muckross Lake (AL), Upper Lake (AL).

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