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Loch Conaortha, County Galway O.S. L 875 369

(Lough Aconeera) O.S. Discovery Sheet 44



Conservation Designation: Connemara Bog complex SAC 002034, pNHA 002034

General description:

Lough Aconeera is a moderate sized (26ha) lagoon up to 5m deep in the central parts, situated on the northern shore of Kilkieran Bay, western Connemara, 6 km north of Kilkieran. It is a type of lagoon, rare in a European context, but characteristic of parts of the west coast of Ireland, especially in Connemara, which are permanent and brackish, with restricted tidal influence due to the presence of a “barrier” of granite rocks and peat referred to as a “rock/peat” lagoon. This lagoon lies at the base of a mountain range, Cnoc Mordáin, which rises to 354 m within 1 km of the lake.

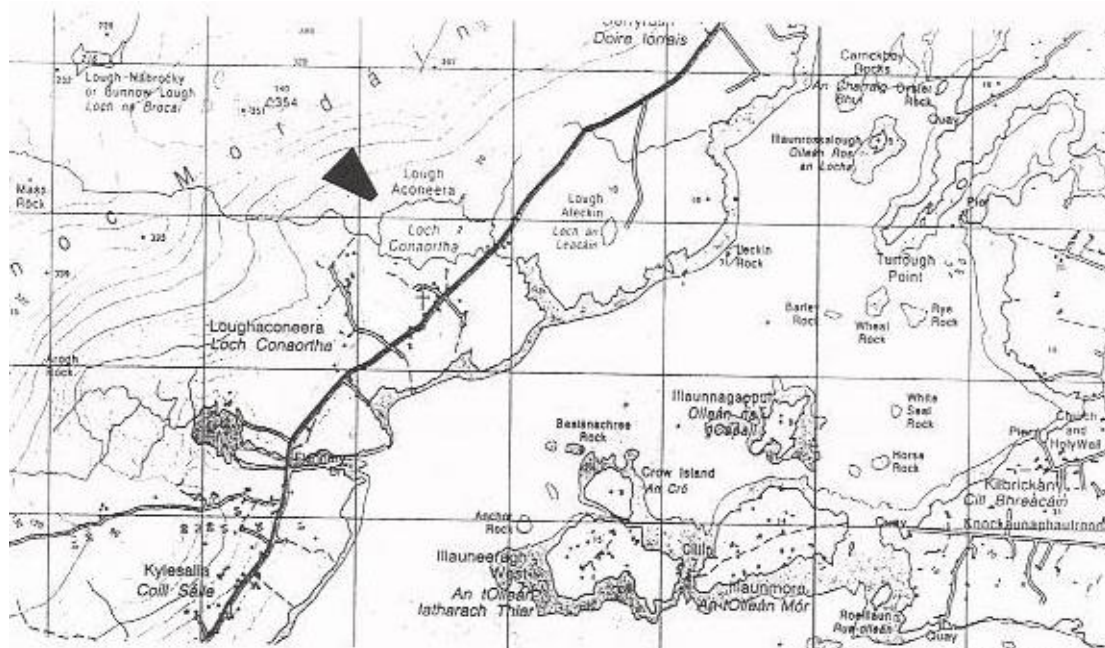


Figure 63.1 Location of map of L. Conaortha (L. Aconeera).

Lough Aconeera was surveyed for aquatic fauna in 1996 (Healy & Oliver 1996, Oliver & Healy 1998) and ecotonal coleoptera (Good 1996, Good & Butler 1998). Vegetation was surveyed in 1996 by P. Hatch (Hatch 1996, Hatch & Healy 1998) and again by C. Roden briefly in 1998 and more intensively in 2003 (Roden 2004). Results of these surveys are summarised by Healy *et al.* (1997a,b, c), Healy & Oliver (1998) and Healy (1999a,b, 2003).

Flora

Taken from Hatch (1996):

Ruppia cirrhosa and *Potamogeton pectinatus* grew in dense mixed and single species beds at the western end to a depth of about 2.5 metres and within 10 m of the shore around most of the site with *P. pectinatus* particularly dense in sheltered bays.

Chara baltica was frequent around the site and was particularly abundant near a freshwater inflow.

Some *Fucus* was present near the tidal inlet. Marginal vegetation was poorly developed and consisted of *Juncus maritimus* dominated saltmarsh vegetation with *Schoenoplectus lacustris* ssp *tabernaemontani* in small occasional stands and *Phragmites* in dense beds near freshwater inflows.

Taken from Roden (2004):

The water in this lake is visibly stratified at a depth of about 4m. Water clarity is moderate to good. The deepest point reached was about 6m. Here a muddy floor with outcropping rock had empty shells of *Mytilus edulis*, *Mya arenaria* and *Cerastoderma glaucum* on the surface. Rare plants of *Chondrus crispus* grew on rock. Along the thermocline occasional *Aurelia aurita* were seen, these specimens were larger than those found in Loch Fhada. At about the level of the thermocouple dense stands of *Chaetomorpha linum* were found on rock and sand. The upper part of the lake floor consisted of very large glacial boulders (like Loch a tSáile) resting on bedrock, mud or sand. A band of *Ruppia* (*cirrhosa*?) occurred above the *C. linum* at about 2-3m. Extremely dense stands of *Potamogeton pectinatus* were found near the shore. Above this zone at 1m *Chara baltica*, *Ruppia maritima* and *P. pectinatus* were seen.

Four of the above species are lagoonal specialists and one is a very rare charophyte. The charophytes are a difficult group to identify and there are certain taxonomic difficulties. The following information concerning *C. baltica* is taken from Roden (2004).

Chara ?baltica. Recent records from 3 lagoons. This species was first reported by Hatch & Healy (1998) in L. Aconeera, identified as *C. baltica* by Jim Ryan and confirmed by Mr. Nick Stewart. However, recently Stewart wrote to C. Roden expressing reservations about his identification. The population was resampled and depending on one's interpretation of the cortex it keys out as either *Chara baltica* or *Chara aspera*, using standard works. Another related lagoonal taxon, known from Brittany and southern Europe is *C. gallioides* which is larger than *C. aspera* and has larger reproductive organs and lacks bulbils. It has not been possible to obtain fertile material which would help in identification, from L. Aconeera and the species remains to be verified. (Roden (1999) recorded *C. baltica* in L. an tSáile in 1998, which is apparently the same species as the *Chara* in L. Aconeera, and similarly remains to be verified).

Another charophyte found in Ballyconneely L. since 1998 easily keys out as *Chara baltica* on the basis of size (>60cm), spines single or in pairs, large reproductive organs and long uncorticated branchlet end cells, as well as slight encrustation. However this identification has not been confirmed by an expert in the group and Schubert and Blindlow (2004) note differences between the form of *Chara baltica* found in the Baltic Sea and all other European populations identified as this species.

Chaetomorpha linum. There is some doubt about the taxonomic status of the unattached lagoonal form of this species, and it was recorded by Hatch and Healy (1998) as *C. mediterranea*. It is a common, characteristic alga of semi-isolated Irish lagoons, recorded at 49 of the 87 (56.3%) lagoons surveyed.

Ruppia spp. are the most characteristic aquatic plant taxa of Irish coastal lagoons. The species are hard to distinguish when not flowering, and remain uncertain at some sites, but *Ruppia* of one species or the other (*R. maritima*, *R. maritima* var *brevirostris*, *R. cirrhosa*) was found at 62 of the 87 lagoons (71.3%) surveyed, and is one of the most useful indicators of coastal lagoon status. *R. maritima* appears to be the more common of the species and was found at 41 of the lagoons surveyed (47%). *R. cirrhosa* is believed to tolerate higher salinities than the former species and to be less common, but neither of these statements is clearly supported in Irish lagoons and the two species were often found growing together. *Ruppia cirrhosa* was only identified at 23 lagoons (26%), but species was not determined at 12 sites. *Ruppia maritima* var *brevirostris* was only positively identified at two sites (Ballyteige, Co. Wexford and Inch L., Co. Donegal).

The site was rated as of **exceptional conservation value** based on the presence of four lagoonal specialists including the rare charophyte, *Chara baltica*.

Fauna

Five stations were selected for faunal sampling in L. Aconeera in 1996 (Figure 63.2, Table 63.1)

Table 63.1 Positions of faunal sampling stations in L. Aconeera, 5-6/9/96, with salinity, depth of water and type of substratum.

	Sta A	Sta B	Sta C	Sta D	Sta E
GPS position	L 8787 3683	L 8716 3683	L 8718 3700	L 8728 3692	L 8769 3714
Salinity(psu)	13	13	10	12	12
Depth of water(cm)	0-60	0-60	0-30	0-120	0-120
Substratum	Granite bedrock, stones, gravel, coarse sand	Small cobbles, coarse granite sand	Coarse granite sand	Bedrock, soft organic mud	Coarse sand, organic silt

Among 22 taxa identified, 20 were identified to species. Four species are lagoonal specialists in Britain and one species (*J. nordmanni*) is proposed as a lagoonal specialist for Ireland, but all of these species are relatively common in lagoonal habitats in Ireland.

Jaera nordmanni. Isopod crustacean recorded at 24 of the 87 lagoons surveyed (27.6%) and may occur at others where it was not recorded due to the fact that only adult males are easily identified. This species may occur in freshwater, as in L. Errol, Cape Clear, Co. Cork. Described in England (Barnes 1994, Hayward and Ryland 1995) as occurring in streams flowing down the shoreline, on south and west coasts only. All records in Ireland are from West Cork to Donegal. Proposed as a lagoonal specialist for Ireland by Oliver and Healy (1998).

Lekanesphaera hookeri is a common lagoonal isopod crustacean, found at 37 of the 87 lagoons surveyed (42.5%).

Palaemonetes varians Decapod crustacean listed as a lagoonal specialist in the U.K. by Barnes (1989) and Bamber (1997), but apparently is no longer regarded as such. Although found in estuaries, this species appears to be far more characteristic of lagoons in Ireland, found in 64 of the 87 lagoons surveyed (73.6%) and may require a lagoonal

environment for reproduction. Therefore, it remains on the proposed list of lagoonal specialists for Ireland.

Cerastoderma glaucum Bivalve mollusc. A common lagoonal specialist found at 30 of the 87 lagoons (34.5%) surveyed.

Conopeum seurati Bryozoan recorded at 49 of the 87 lagoons surveyed (56.3%), but is not listed in a recent review of Irish marine Bryozoa (Wyse Jackson 1991). Either the species is under-recorded or is truly a lagoonal specialist.

In spite of the high proportion of rocky substrate, burrowing species were well represented e.g. *Arenicola marina*, *Corophium arenarium*, *Mya arenaria* and *Cerastoderma glaucum*. *Gammarus* (2 spp.) were particularly abundant.

The species composition is characteristic of middle to low salinity waters not subject to frequent colonisation from the sea but the absence of limnic species indicates that there is always a significant marine influence and that there are no permanent freshwater inflows of significance.

None of the recorded species can be described as rare in Ireland.

Based on aquatic fauna, the site can be rated as of **moderate conservation value** only.

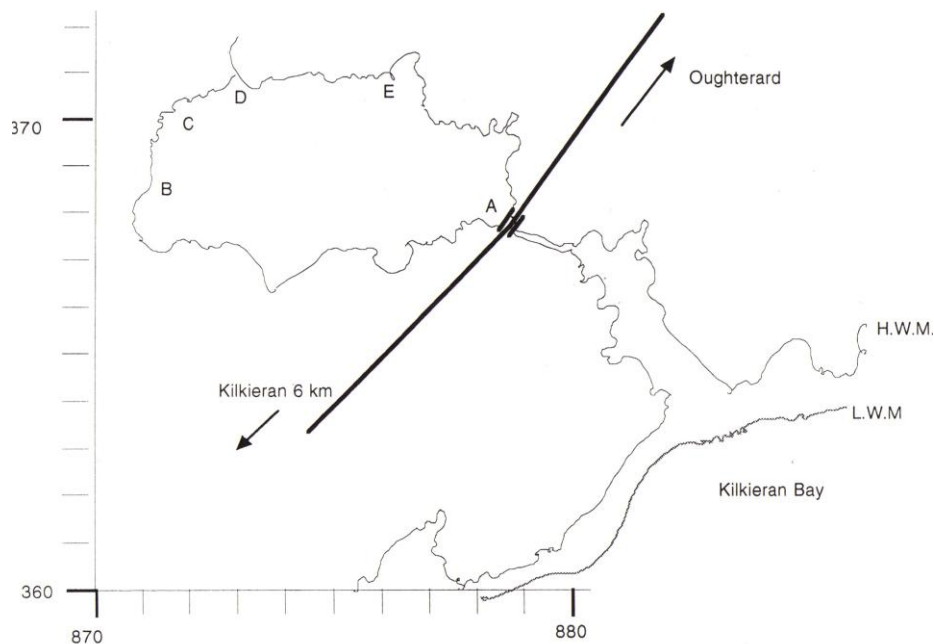


Figure 63.2 Sampling stations used at L. Conaorcha (L. Aconeera), 5-6/9/96.

Ecotonal coleoptera

Thirteen species of staphylinid and nine species of carabid beetles were recorded in L. Aconeera in 1996 (Good 1996, Good & Butler 1998). One species (*Agonum nigrum*) is an indicator species, which occurs on the shores of standing waters (fresh and brackish) and bogs, but the presence of only one indicator species is insufficient to indicate well-developed habitat. Based on ecotonal coleoptera the site was rated as of **low conservation value**.

Table 63.2 Aquatic Fauna Recorded in Lough Aconeera. June and September, 1996.

L.T. = light-trap () = records from June. + = present; o = occasional; c = common; a = abundant, F = Fyke net. Species in bold text are lagoonal specialists or rare species.

	Sampling Stations								
	A	L.T.A	B	C	L.T.C	D	L.T.D	E	L.T.E
Turbellaria	(+)		+					+	
Annelida <i>Arenicola marina</i>			+	+					
Crustacea									
Mysidacea <i>Neomysis integer</i>	a	250	+	a	200	c	200	a	800
Isopoda <i>Idotea sp.</i>	+	1							
<i>Jaera nordmanni</i>	+	+			+				
<i>Lekanesphaera hookeri</i>	a	150	+	c	100	a	250	c	50
Amphipoda <i>Corophium volutator</i>	+								
<i>Gammarus duebeni</i>	+		+	+	+	+		+	+
<i>G. zaddachi</i>	+	+	+		+	+			
Decapoda <i>Carcinus maenas</i>	+			F, 1				F, 2	
<i>Palaemonetes varians</i>	(+)							+	1
Insecta									
Ephemeroptera	(+)								
Odonata <i>Ischnura elegans</i>	+			+				+	4
Trichoptera (cases)						+			
Coleoptera <i>Gyrinus caspius</i>	(+)								
Diptera Chironomidae	+		+	+		+			
Mollusca									
Prosobranchia <i>Potamopyrgus antipodarum</i>	+		+	+		+		+	
Bivalvia <i>Cerastoderma glaucum</i>				a					
<i>Mya arenaria</i>	+			+		+			
<i>Mytilus edulis</i>			+						
Bryozoa <i>Conopeum seurati</i>	+		+					+	
Teleostei <i>Anguilla anguilla</i>		F, 2						F, 7	
<i>Gasterosteus aculeatus</i>	c	1	c	c	3	c	3	c	26
<i>Platichthys flesus</i>	F, 5								
<i>Pomatoschistus microps</i>	c	1	c	c	4	c	6	c	7

Summary

Lough Aconeera is a good example of a large, natural “**rock/peat**” lagoon with a natural tidal range and a substrate comprising a large proportion of bedrock. The aquatic fauna was typical of a lagoon in the middle to low salinity range and included five lagoonal specialists. The aquatic vegetation was well developed with four lagoonal specialists and remarkable chiefly for the presence of rare lagoonal specialist charophyte *Chara baltica*. Only indicator species of ecotonal Coleoptera was recorded, but the stands of *Juncus maritimus* in which the species occurred were small and staphylinid numbers were low.

Botanically, the lake is rated as of exceptional conservation value for the presence of *Chara baltica* but in other respects its rating is only moderate to low. Overall value is therefore rated as high mainly to the presence of *C. baltica*.

Overall Conservation Value = High

Conservation Status Assessment (from Oliver 2007)

Impacts

No major impacts.

Conservation Status

Favourable

Further Information

Loch Aconeera was surveyed for aquatic fauna in 1996 (Healy & Oliver 1996, Oliver & Healy 1998) and ecotonal coleoptera (Good 1996, Good & Butler 1998). Vegetation was surveyed in 1996 by P. Hatch (Hatch 1996, Hatch & Healy 1998) and again by C. Roden briefly in 1998 and more intensively in 2003 (Roden 2004). Results of these surveys are summarised by Healy *et al.* (1997a,b, c), Healy & Oliver (1998) and Healy (1999a,b, 2003). Included in a biological classification of Irish coastal lagoons (Oliver 2005) and in the Conservation Status Assessment (Oliver 2007).

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