

# **The Irish Naturalist**

Page 207 - 214

September 1906

## **On the Botany of Lough Carra**

By R. Lloyd Praeger

---



## ON THE BOTANY OF LOUGH CARRA.

BY R. LLOYD PRAEGER.

LOUGH CARRA is one of the chain of lakes which runs from Galway Bay to Killala Bay, intervening between the great limestone plain, which stretches away to the eastward, and the Connaught highlands, formed largely of metamorphic and igneous rocks, which rise, often abruptly, on the western side of the lake-basins. While not attaining anything like the size of Corrib, Mask, or Conn, Lough Carra is nevertheless a good-sized sheet of water. It has a length of six miles and a breadth of two, but is much broken up by promontories and islands. One large land projection almost cuts the lake in two, and as there are certain differences of character between the two portions, I shall distinguish them as the upper (*i.e.*, northern) lake and lower (*i.e.*, southern) lake respectively. Lough Carra lies just inside the western boundary of the limestone area, which runs north and south within a mile of the lake-shore. The strip of Carboniferous Sandstone, a couple of miles wide, which then intervenes between the limestone of the plain and the slates, gneisses, and porphyries of the mountains, supports the full calcifuge flora which characterises the latter. Around the lake the limestone dips east and south-east at very low angles—generally about  $3^{\circ}$ —which tends to produce shallow water on the eastern side of the islands and points, while the western side often descends steeply into deeper water. The lower lake is mostly very shallow, the upper lake deeper, and with higher shores. Lough Carra has long been famous for the wonderful colour of its water, which is a pale pellucid green. This results partly from the purity of the water itself, but mainly from the extraordinary limy incrustation which covers the whole bottom. Even on the boulders just below water-level this is an inch or two in thickness—a soft crust, with pinkish and greyish blotches caused by algal growth. Deeper down the deposit is softer and more soapy in feel, and white or cream in colour. The incrustation is most dense in the lower lake, and has there a very deleterious effect on aquatic plant-life. Hydrophytes are nearly absent, and a few starved beds of



Chara, desperately incrustated, and some spindly stems of *Potamogeton perfoliatus* rising from deep water, represent the aquatic vegetation. Even the reed vegetation is affected, and the groves of *Phragmites* and *Scirpus* are thin and rather stunted. In the upper lake the incrustation, though everywhere present, is not nearly so dense, and hydrophytes have a better chance. The lake is here seen to be divided into areas of pale green and areas of dark green. The former indicate the white limy bottom; the latter were found by dredging to represent great beds of *Chara hispida*, growing in 10-20 feet of water, mixed with *Potamogeton perfoliatus* and *C. polyacantha*. Along the margin of the upper lake, too, *Littorella* and littoral Pondweeds may be gathered. It may be noted that both in the streams which enter the lake, and in the stream which drains it, the hydrophytes are quite un-incrustated, and excellent specimens of Pondweeds and Charas may be gathered.

Lough Carra lies 69 feet above Ordnance datum. The surrounding country is low. Around the lake in some places drift is absent, and limestone pavements are developed, though to no great extent. The shores are wooded in many places, sometimes with pines and other exotic trees, sometimes with a native vegetation. Peat bogs are rare in the vicinity of the lake, and cultivated land and woods predominate.

The flora of Lough Carra is by no means unexplored. John Ball, F.R.S., visited the lake in 1837, and notes<sup>1</sup> the occurrence of *Thalictrum minus*, *Rhamnus catharticus*, *R. Frangula*, *Euonymus europæus*, *Rubia peregrina*, *Galium boreale*, *Antennaria dioica*, *Gentiana verna*, *G. Amarella*, *Spiranthes autumnalis*, *Lastrea Thelypteris*, and *Equisetum variegatum*.

A. G. More visited Lough Carra in 1854, but notes<sup>2</sup> only eight plants—namely, *Viola canina*, *Rhamnus catharticus*, *Myriophyllum verticillatum*, *Antennaria dioica*, *Gentiana verna*,

---

<sup>1</sup> Botanical Notes of a Tour in Ireland, with Notices of some new British Plants. *Ann. of Nat. Hist.*, ii., 35. 1839.

<sup>2</sup> Localities for some plants observed in Ireland, with remarks on the geographical distribution of others. *Proc. Dublin Univ. Zool. and Bot. Assoc.*, ii., 54-65, 1860, and *Nat. Hist. Review*, vii. (*Proc.*), 434-443. 1860.



*Plantago maritima*, *Sesleria caerulea*, *Selaginella selaginoides*. To these he added, in the first edition of "Cybele," *Rubus saxatilis*, *Rosa Sabini*, and *Epipactis palustris*; and in the same work *Ophrys apifera* is recorded, on the authority of Miss Lindsay. Lastly, Mrs. D. D. Persse collected a good deal in the Ballinrobe district in 1892-4, and kindly allowed me to take notes from her herbarium when I was gathering material for "Irish Topographical Botany." The rarer Lough Carra plants included in her collection were *Thalictrum collinum*, *Gentiana verna*, *Salix pentandra*, *Juniperus communis*, *Spiranthes autumnalis*, *Ophrys apifera*. This appears to exhaust our previous knowledge of Lough Carra botany, save for *Rubus caesius*, published by Focke,<sup>1</sup> as collected there by John Ball in 1837, and *Ophrys muscifera* and *Lastrea Thelypteris*, given in "Cybele Hibernica" (ed. II.), as found at Lake View by Miss Jackson in 1894-6.

Towards the end of last July my wife and I spent four days at Lough Carra. By the kindness of Mr. Stanhope Kenny, of Ballinrobe, we not only found comfortable quarters close to the lake in the house of Mr. P. J. Loughlin, but had a boat at our disposal, which was an invaluable aid to botanical work. Three days were spent on the water, visiting the islands, points, and bays, while on the fourth we cycled round the lake, to gain some idea of the flora of the adjoining country. The following notes convey our impressions of the vegetation, and give particulars concerning the rarer plants observed.

**ZONES OF VEGETATION.**—On the shores of the lake, and particularly upon the islands, the zoning of the vegetation is very marked. Four zones are present, each with a characteristic flora. They may be distinguished as follows:—

1. Woodland zone.
2. *Sesleria* zone.
3. *Schænus* zone.
4. *Scirpus* zone.

*Scirpus* zone.—To take the lowest first. This extends from water-level to some feet below it, and is characterized by patches of *Scirpus lacustris* and *Phragmites communis*. As already mentioned, water-plants are quite rare, especially in the

<sup>1</sup> List of the British and Irish *Rubi* in the herbarium of the late Mr. John Ball, F.R.S. *Journ. Bot.*, xxix., 162-163. 1891.



lower lake (which is the more characteristic as well as the larger portion), and some stunted *Chara* is usually the only other inhabitant of this zone.

*Schænus zone*.—This extends from summer water-level to about two feet above it. Ground wet and marly. *Schænus nigricans* is absolutely dominant, and very abundant. Here also *Epipactis palustris* has its headquarters. This lovely Orchid is remarkably common around Lough Carra, and hardly a yard of shore, on island or mainland, is without it; I never saw it in such profusion before. Other abundant and characteristic plants of the *Schænus* zone are *Galium boreale*, *Cnicus pratensis*, *Parnassia palustris*, *Pinguicula vulgaris*, *Habenaria conopsea*, *Selaginella selaginoides*. Two interesting Orchids, *Ophrys apifera* and *O. muscifera*, seen at Derrinrush and below Moore Hall, grew in this zone, as also *Equisetum variegatum* (var. *majus*, Syme), found on Bush Island.

*Sesleria zone*.—When the ground reaches about two feet above summer water-level (the lake does not appear to be subject to much winter flooding), *Sesleria cærulea* becomes abundant, and as one ascends, quite replaces *Schænus*, growing luxuriant and tall (up to 2½ feet), and easily dominant, save on one or two islands, where the zone is controlled by a tall growth of *Festuca elatior*. The ground here is dry, and masses of disintegrating shells thrown or blown up by storms help to make a light limy soil. Abundant and characteristic concomitants of the *Sesleria* are *Thalictrum collinum*, *Viola canina*, *Rhamnus Frangula* (growing almost prostrate), *Rubus saxatilis*, *Galium verum*, *Antennaria dioica*, *Carlina vulgaris*, *Leontodon hispidus*, *Campanula rotundifolia*, *Chlora perfoliata*, *Plantago maritima*, *Orchis pyramidalis*, *Agrostis nigra*—a very calcicole group, it will be noticed. Odd young trees from the next zone—mostly Birches—are sometimes present.

*Woodland zone*.—At about four feet above summer water-level the grass formation gives way abruptly to arboreal vegetation. On shores facing west this presents a very dense thicket, sloping upwards from the ground; on the other side the bushes are larger, and their front not so dense. The leading species are *Betula pubescens*, *Rhamnus catharticus*, *Fraxinus excelsior*, *Salix aurita*, *S. cinerea*, *Juniperus communis*. There are also present *Cratægus Oxyacantha*, *Ilex Aquifolium*,



*Euonymus europæus*, *Rubi*, *Rosa canina*, *R. tomentosa*, *Pyrus Aucuparia*, *P. Aria*, *Viburnum Opulus*, *Ulmus montana*, *Corylus Avellana*, *Populus tremula*, and more rarely *Prunus Avium*, *Sambucus nigra*, *Alnus glutinosa*, *Salix caprea*, *Quercus Robur*. All these are, I believe, native. On some of the islands conifers and other trees have been planted, and on others, which are close to mainland plantations, seedling Pines and Sycamores may be seen; but the flora of most of the outlying islands appears to be quite undisturbed, and I have no doubt that *Ulmus*, *Populus*, and *Prunus Avium*, which are sometimes questionable natives, are indigenous here. Of the trees and bushes mentioned, *Juniperus communis* and *Rhamnus catharticus* especially haunt the woodland edge, along with tall herbaceous plants, such as *Spiræa Ulmaria* and *Eupatorium cannabinum*. The largest trees are *Fraxinus* and *Ulmus*, attaining a height of about 20 feet. Below the trees, the ground is carpeted with Ivy, often infested with *Orobanche Hederae*, and *Primula vulgaris* is abundant.

So much for the zones of vegetation of the lake-shore. It remains to refer further to the flora of different types of habitat which occur about the lake.

*Lake Plants.*—The great poverty of the aquatic flora has been already mentioned, but, as stated, in the upper lake, and especially at its northern end, hydrophytes flourish. The most interesting of these is *Potamogeton filiformis*, found in no less than four stations, all of them being shallow sheltered sandy bays. It is accompanied by *Ranunculus trichophyllus*, *Myriophyllum spicatum*, and *M. alterniflorum*.

*Streams, Marshes, and Bogs.*—In the stream which enters the lake south-east of Moore Hall, *Ranunculus Lingua* and *Myriophyllum verticillatum* are abundant, also a Pondweed of puzzling appearance, on which Mr. Arthur Bennett makes the following report:—

"Interesting specimens. I have the counterpart of your sheet in my herbarium from the canal between Woking and Frimley in Surrey, and I have not put a name to it, though I have it in the *heterophyllum* cover. I have nothing exactly like it from Asia, America, or Europe, among some hundreds of specimens. In Europe the nearest is Irish, i.e., from 'Lough Derg, 28/7/1882, B. King'; but it is a poor specimen. The formation of fruit is against its being a hybrid, though at one time I thought



it might be *heterophyllus*  $\times$  *nitens*, though *nitens* has rarely (if ever?) been found with fruit. The lower parts are very like specimens named *P. intermedius* Tiselius, from Sweden, but the upper part is not! There is a plant that is somewhat like yours, only on a very small scale, from Canada, lat. 56°, gathered by Prof. Macoun. You will say—well, what is it? My answer will be *P. heterophyllus*, Schreb. f. *confertus*."

In the stream which drains the lake *P. lucens* and *P. nitens* grow, and the latter was also seen in a starved condition in the lake. In marshy ground and shallow bays, especially on the upper lake, *Cladium Mariscus* and *Juncus obtusiflorus* are abundant, with some *Carex Hudsonii*, and *C. filiformis*. *Cladium* also climbs out of the water, and colonizes the chinks of limestone pavements, up to six feet above lake-level. The few wet peaty places yield *Drosera anglica*, *D. intermedia*, and *Scirpus pauciflorus*, and peaty pools are full of *Potamogeton plantagineus*, *Myriophyllum verticillatum*, and *Lemna trisulca*.

*Woods*.—The shade or dependent flora of the dense thickets on the islands is limited, and has been referred to already. At Derrinrush an extensive natural wood occurs. In addition to the trees mentioned above, *Prunus Padus* grows here. The shade plants which carpet the ground include *Viola Reichenbachiana*, *Geum rivale*, *Crepis paludosa*, *Veronica montana*, *Neottia Nidus-avis*, and *Epipactis latifolia*.

*Limestone pavements*.—Along the western side of the lake there are several areas of bare limestone, forming irregular pavements and terraces. These were examined with some care, to see what members of the Burren flora extend to this, the extreme northern limit of the Galway-Clare area of limestone pavements. The best find was *Neotinea intacta*, of which two stations were discovered by my wife and one by myself, namely, half mile south of Deradda, half mile west of Bonnamillish Island, and half mile north-west of Church Island. As these stations range from the south to the north end of the lake, and as the plant was of course in fruit, and therefore difficult to find, there can be little doubt but that it is fairly abundant in this district. Its previous most northern station in Ireland was by Lough Corrib, near Cong (D. Moore, 1872). On these limestones *Rubia peregrina* and *Aquilegia vulgaris* are abundant, as well as all the plants mentioned as characterizing the Sesleria zone around the lake. *Taxus*



*baccata* occurs occasionally, and *Hieracium iricum* had at least one station. Another Hawkweed, now out of flower, I brought home to grow. *Erica cinerea* grew and flourished on the bare limestones. The absence of *Euphrasia Salisburgensis* was noticeable. On our journey to Lough Carra we had found it abundant near Clonbur, and traced it northward nearly to Ballinrobe; but about Lough Carra we did not meet with it.

*The Calcifuge Flora.*—Though not actually touching the lake shore, we turned westward for half a mile out of Partry to note the change of flora caused by the substitution for limestone of Carboniferous Sandstone. This is very marked. On one side of a narrow shallow valley rise green limestone bluffs, clothed with *Sesleria*, *Chlora*, and *Carlina*. On the other are dark-brown heathy knolls, covered with *Erica*, *Calluna*, and *Dabeocia* in profusion. The river which divides East from West Mayo is here still half a mile distant, so this furnishes a very satisfactory third East Mayo station for the last-named. With it, among the heather, grew *Listera cordata* at an unusually low elevation—about 100 feet above Ordnance datum.

*Cultivated Area.*—At Ballintober *Lychnis Githago* grew among crops, and *Tanacetum vulgare* in a rough field. *Anthemis* *Cotula* and *Euphorbia exigua* occupied roadsides near Partry, where also *Lolium temulentum* was gathered, and *Inula* *Helenium* in a rough field at Carrownacon. *Matricaria*, *discoidea* lines every road and lane right round the lake.

*Influence of Birds.*—On several islands, such as Bush Island and Illanatran, Black-headed Gulls and Terns breed, but without effect on the flora. On a small rocky wooded islet south-east of Castle Carra, however, there is a large colony of Black-headed Gulls, which largely control the flora there. The birds breed not only on open rocks, but on flat rocks among dense bushes. The trees and certain other plants, such as *Phragmites*, seem benefited by the guano, and flourish exceedingly. Other usual plants of the islands are missing, and have presumably been exterminated. A third set of plants have been introduced by the gulls. These include *Stellaria media*, *Sonchus asper*, *Polygonums* and *Atriplices*, *Urtica dioica*, the cultivated Oat, *Matricaria inodora*, and even *M. discoidea*.



*Additions to E. Mayo flora.*—The following plants, which have been referred to above, are additions to the flora of Division 26, East Mayo:—

|                                |                              |
|--------------------------------|------------------------------|
| <i>Viola Reichenbachiana</i> , | <i>Euphorbia exigua</i> ,    |
| <i>Prunus Avium</i> ,          | <i>Ulmus montana</i> ,       |
| <i>P. Padus</i> ,              | <i>Juniperus nana</i> ,      |
| <i>Myriophyllum spicatum</i> , | <i>Taxus baccata</i> ,       |
| † <i>Anthemis Cotula</i> ,     | <i>Listera cordata</i> ,     |
| <i>Hieracium iricum</i> ,      | <i>Neottia Nidus-avis</i> ,  |
|                                | † <i>Lolium temulentum</i> . |

*Taxus baccata* has, in fact, been previously found in East Mayo (see "Irish Top. Bot.") but only in a "probably introduced" station.

Of the plants previously recorded from Lough Carra, those which we did not meet with were *Rosa Sabini*, *Gentiana verna*, and *Lastrea Thelypteris*. These were found about Moore Hall or Lake View, places to which we devoted only a few minutes.

One of the most interesting features of the Lough Carra flora is its richness in Orchids. Out of the Irish list of 24 species, 19 were found around the lake—namely, *Neottia Nidus-avis*, *Listera cordata* and *ovata*, *Spiranthes autumnalis*, *Epipactis latifolia* and *palustris*, *Orchis pyramidalis*, *Morio, mascula, incarnata, latifolia*, and *maculata*, *Ophrys apifera* and *muscifera*, *Habenaria conopsea, intacta, viridis, bifolia*, and *chloroleuca*.

## IRISH SOCIETIES.

### ROYAL ZOOLOGICAL SOCIETY.

Recent gifts include a short-eared Owl from Mrs. J. E. Ellis, a Sulphur-crested Cockatoo and a Mealy Amazon from Mrs. St. George, a Kingfisher from Mr. H. G. Cooke, a Herring Gull from Dr. J. Lentaigne, an Amazon from Capt. J. R. Simpson, four Black-headed Gulls, two Call-ducks, four Redpolls, and a Bullfinch from Mr. W. W. Despard, a Ring-snake from Mr. J. Marshall, and Badgers from Mr. J. C. Carter.