Drummin Bog Site Visit

Figure 1: View of Drummin Bog looking north-west (Source: WetFutures)

On Tuesday 13th July 2021, the WetFutures team (Ben Gearey, Rosie Everett; UCC) undertook a site visit at Drummin Bog, Co Carlow in collaboration with Jules Michael, Cathy Fitzgerald, Martin Lyttle and Alan Price of the Drummin Bog Project Committee.

The aim of the visit was to establish an understanding of the current extent and condition of the bog, and to provide advice on potential archaeological/palaeoecological input for future community engagement activities.

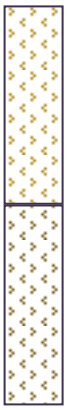
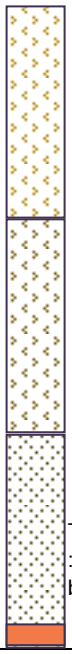
As part of this visit, BG and RE undertook a series of gouge auger surveys to try to characterise the peat deposits and potential underlying pre-peat deposits at Drummin Bog. Four locations were subjected to gouge auger investigation (Figure 2), including description of an exposed peat section at G4. This report outlines the descriptions of deposits encountered during the auger survey, and recommendation for potential further work and approaches for further community engagement.

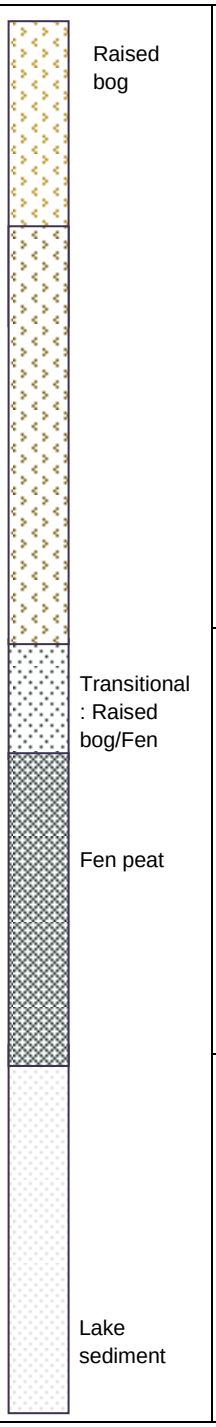
Figure 2: Gouge auger survey locations at Drummin Bog (Source: WetFutures)

Results of gauge auger survey

Table 1 below outlines the deposits encountered in each gouge survey on Drummin Bog.

Table 1: Gouge auger descriptions from Drummin Bog

Auger location	Depth (m)	Deposit description	Core log	Notes
G1	0.00-0.50	Dark brown/black damp moderately humified peat. Fragments of Eriophorum (cotton grass) and Ericaceae (heather)		
	0.50-2.50	Wet/loose dark brown/black peat with fragments of Ericaceae (heather), monocots (grasses/sedges) and possible sphagnum		Obstruction at 2.50m
G2	0.00-0.50	Dark brown/black damp moderately humified peat. Fragments of Eriophorum (cotton grass) and Ericaceae (heather)		
	0.50-2.50	Wet/loose dark brown/black peat with fragments of Ericaceae (heather), monocots (grasses/sedges) and possible sphagnum		
	2.50-3.20	Dark brown/black detrital peat with Ericaceae (heather) and rootlets. Base of sequence red wood fragment (possible Alder or Yew)		Obstruction at 3.20m
G3	0.00-0.50	Dark brown/black damp moderately humified peat. Fragments of Eriophorum (cotton grass)		
	0.50-1.00	Increasingly wet, dark brown/black detrital peat with Ericaceae (heather) and rootlets and possible sphagnum		
	1.00-2.00	Dark brown/black fibrous, detrital peat with root fragments. Section of Ericaceous (heather) fragments at base.		Obstruction at 2.00m

G4	0.00-0.45	Dark brown, very rooty (across sequence), moderately-poorly humified peat with occasional discontinuous layers of humified sphagnum		Recorded from bulk section Samples taken at 0.50m and 0.90m
	0.55-0.55	Dark brown moderately-poorly humified sphagnum		
	0.55-0.65	Dark brown lightly humified peat with fragments of sphagnum and Eriophorum (cotton grass)		
	0.65-0.74	Dark brown moderately-poorly humified sphagnum		
	0.64-2.00	Black highly humified and compressed peat with sphagnum, Eriophorum (cotton grass), Ericaceae (heather) and monocots (grasses and sedges)		Recorded from auger
	2.00-4.40	Dark brown highly organic detritus (Dl – detritus ligneous) with monocot (grasses and sedges) rootlets		
	4.40-5.20	White marl		Sediment formed in lakes from calcium carbonate precipitation Sample taken at 4.70m

Brief discussion and interpretation

The results of the auger survey demonstrated the following:

- Shallowest deposit encountered in G3 at 2m, in which the sequence was characteristic of raised bog deposits in the upper deposits (ca. 1m in depth) and overlying earlier fen peat deposits (ca. 1m in depth) with Ericaceae (Heather) fragments at the base of the sequence.

- The fen peat deposits encountered in G1 and G2 demonstrated a sequence of upper raised bog deposits (ca. 0.50m in depth) overlying earlier fen peat deposits (ca. 1m at G1 and 2.70m at G2 in depth). The fen peat deposits also demonstrated the potential to be overlying in-situ preserved wood (Figure 3; possible Alder or Yew) from the earliest phase of the fen formation when the increase in water table may have caused surrounding trees to collapse and break down to form a layer of decayed wood.

Figure 3: Preserved wood at the base of G2 (Source: WetFutures)

- The deepest deposit was encountered at location G and used both the exposed section and gouge auger to record the sequence at this location. The exposed section (Figure 4) demonstrated a sequence of raised bog (ca. 0.74m in depth) overlying fen bog deposits

(ca. 1.25m in depth). The auger that was taken from the base of the section demonstrated that the fen peat deposit continued for an additional 2.40m and overlay marl deposits (Figure 5; ca. 0.80m in depth) representing the pre-peat freshwater lake environment.

Figure 4: Exposed peat section at location G4 (Source: Jules Michael)

Figure 5: Basal marl deposit at location G4

In summary, the auger survey at Drummin Bog demonstrated the preservation of sequences associated with the pre-peat freshwater lake environment, the earliest fen peat formation and the final raised bog formation. The variation of deposit sequences captured in the auger survey are likely to represent the variation in peat depths identified in the geophysical survey (ERT and GPR) shown to RE and BG by Martin Lyttle during the site visit.

Preservation of palaeoecological record at Drummin Bog

On Wednesday 14th July, samples taken from G4 were looked at under a compound and binocular microscope to look for potential preserved micro and macro fossils.

This demonstrated the preservation of the following:

- Macroscopic sphagnum leaves (Figure 6)

- Microscopic pollen grains - e.g., *Calluna vulgaris* (heather) (Figure 7)
- Microscopic diatom frustules in marl deposit (Figure 8)

Figure 6: Sphagnum leaf (Source: WetFutures)

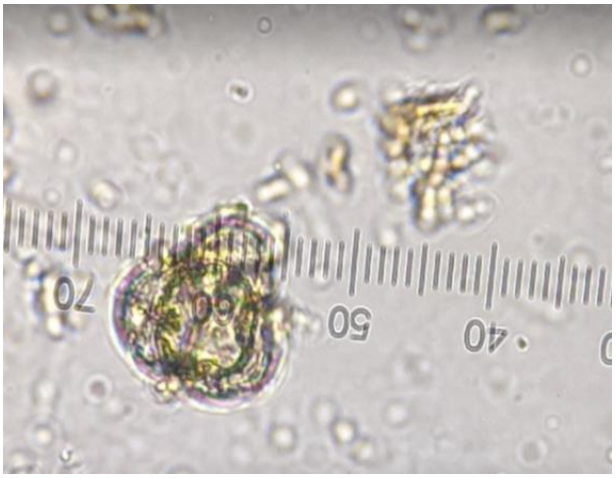


Figure 7: Calluna vulgaris (Heather) pollen grain (Source: WetFutures)

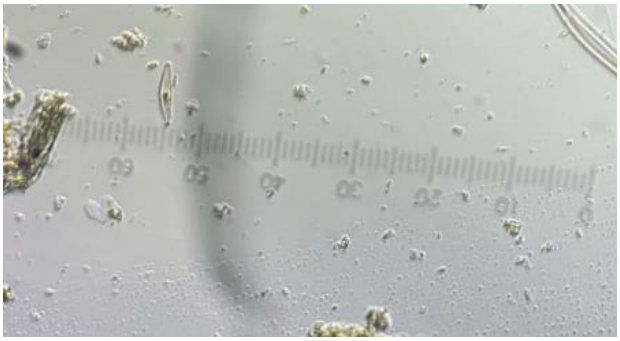


Figure 8: Diatom frustule – unidentifiable at magnification (Source: WetFutures)

Future work

The visit to Drummin Bog and examination of the peat demonstrated significant preservation of different environmental archives and the potential for further future engagement within the community.

The WetFutures team (RE+BG) can recommend the following future contributions:

WetFutures contribution to history of Drummin Bog

- Establish chronology of Drummin Bog through radiocarbon dating
- Analysis of macro and microfossil (pollen + diatoms) to help reconstruct vegetational and peat formation history at Drummin Bog

WetFutures contribution to public engagement at Drummin Bog

- Create visual resources for macro and microfossil archives of Drummin Bog
- Attend future session and establish installation of laboratory environment with samples + microscopes
- Potential additional coring of Drummin sequence to bring to public engagement event