

Compiler: Stephen Heery.

Date of original version: 13th October 2004.

Date of this version: 23rd April 2018. Total 171 Ecological and 36 Geological.

Bibliography of ecological and geological references to Co. Offaly.

The compiler has endeavoured to represent the contents of the publications accurately in the abstracts. Feedback with regard to any inaccuracies or omissions would be welcome.

Format of the bibliography.

The citations are formatted in such a way that the user can search for key words, using the 'search' or 'find' facility on their computer.

Each citation has four parts.

1. **Reference.** The format of the reference follows that generally used by scientific publications.
2. **Abstract.** This is a *circa* 50 word summary of the content of the publication. Included in the abstract are relevant place-names, habitats, and common or scientific names etc *that are not included in the title*.
3. **Key words.** These are words that clarify the subject matter of the publication. All citations should at least have the hierarchical system of words shown below:

Ecology

Botany (i.e. flora)

Vascular (i.e. 'higher plants')

Non-vascular (i.e. 'lower plants')

Zoology (i.e. fauna)

Birds

Mammals

Reptiles

Amphibians

Fish

Invertebrates

Geology

Quaternary

Pleistocene (i.e. the glacial deposits)

Holocene (post-glacial, 'modern period', bog formation)

Bedrock

Hydrology

4. **Availability and source.** This indicates the type of publication and whether it is available with Offaly County Library Services (Tullamore).

Note: Back editions of *Irish Naturalist/Irish Naturalists' Journal* 1892-2010 are available free on limited access to an individual researcher at <http://www.jstor.org/> Go to Log in then Register for a MyJSTOR account.

Ecology

An Foras Forbartha (1981) *Areas of Scientific Interest in Ireland*. An Foras Forbartha.

Includes: 34 sites in Co. Offaly of ecological or geological interest, with grid references, area in ha, general habitat, a short description and the ranking: international, national, regional or local importance. This list was the precursor to the Natural Heritage Area (NHA) series, although some were not included in that series and others were added.

Key words: ecology; geology; habitats; inventory.

Book.

Anon. 1895 Dublin Naturalists' Field Club excursion to Tullamore. *Irish Naturalist* IV: 189.

An excursion to "a bog near Tullamore... "well-known" as one of the largest breeding colonies of the back-headed gull in Ireland (i.e. Sea Gull Bog, see Praeger, 1894; Anon,1897). Nests were found among bog pools. Also visited was Clonad Wood where a list of fungi on woody plants and herbs was made.

Key words: ecology; botany; non-vascular; zoology; breeding birds; raised bog; woodland.

Scientific Journal.

Anon. 1897 Dublin Naturalists' Field Club excursion to Edenderry. *Irish Naturalist*. VI: 199.

An excursion to Edenderry. At Cushaling Bog, black-headed gulls in 'thousands... about one mile into the bog'. Also "redshanks already on the wing at Derris Bog" nearby.

Key words: ecology; zoology; breeding birds; raised bog.

Scientific Journal.

Anon. 2000 Dublin Field Naturalists' Club excursion to Banagher, June 2000.

Green-veined orchid *Orchis morio* was seen among Cowslips *Primula veris* on the Shannon Callows. This was the location of a recent sighting of the tiny fern Moonwort *Botrychium lunaria* but it was not found on this occasion. The Broomrape species *Orobanche minor* was seen in the ruins of the old barracks.

Key words: ecology; botany; vascular; species-rich grassland; buildings and artificial surfaces.

Austin,A., Devery,F., Nash,D.W. 2002 *Pyrola minor* L. in Offaly (H18) and North Tipperary (H10). *Irish Naturalists' Journal*. 27: 143-145.

Identifies a *Pyrola* sp found at Goldengrove, Co. Offaly as *Pyrola minor* Common wintergreen and speculates that this is a plausible location for Heaton's original find. Discusses the Monaincha Bog population (see Walsh, 1978, 1998; Curtis *et.al* 1993).

Key words: ecology; botany; vascular.

Offaly County Library Service.

Scientific Journal.

Blockeel, T.L., Bosanquet, S.D.S., Hill, M.O., Preston, C.D. 2014 *Atlas of British and Irish bryophytes* Pisces Publications, Newbury.

Updates Hill *et al.* 1994.

Key words: ecology; botany; non-vascular

Book.

Bond, K.G.M. 1984 The invertebrates of Irish Midland raised bogs: Part 3. *Bulletin of the Irish Biogeographical Society* **8**: 103–110.

Key words: ecology; zoology.

Scientific Journal.

Bond, K.G.M. 1989 Clonmacnoise Heritage Zone, Co. Offaly, Ireland: assessment of conservation value based on Lepidoptera recorded from 1983 to 1987. *Bulletin of the Irish Biogeographical Society*. **12**: 63-89.

285 species of microlepidoptera and macrolepidoptera were recorded from limestone pavement, eskers, lakeshore fen and carr and, especially, raised bog in the Clonmacnoise Heritage Zone. Their diversity and rarity is discussed.

Key words: ecology; zoology; invertebrates.

Scientific Journal.

Bord na Móna 1990 *Conservation and Corporate Responsibility*. Bord na Móna, Newbridge.

Information brochure for the ceremony to mark the transference of ownership of a series of raised bogs from Bord na Móna to the Wildlife Service. Bogs transferred in Co. Offaly were All Saint's and Moyclare.

Key words: ecology; raised bog.

Buckley, K., Kelly, P., Kavanagh, B., O'Gorman, E. C., Carnus, T., McMahon, B. J. 2012 Every partridge counts, successful techniques used in the captive conservation breeding programme for wild grey partridge in Ireland. *Animal Biodiversity and Conservation* **35(2)**: 387-393.

Describes a project with *Perdix perdix* at Boora, Co. Offaly, started in 1996, and particularly from 2002. Each pair of birds contained at least one (often locally) wild-caught bird from which it is assumed survival knowledge was passed to the chicks. Other aspects were: careful observations of breeding behaviour, disease control, habitat creation, ready access to protein crumbs for chicks and avoidance of habituation to humans.

Key words: zoology; ornithology.

County Library service

Journal (via e-publications@RCSI Royal College of Surgeons, Ireland)

- Caffrey, J.M., Johnston, B. 1998 The Grand and Royal canals – an ecological perspective. In: Moriarty, C. (ed) *Studies on Irish Rivers and Lakes*. Marine Institute, Dublin.
A summary of the literature available on the ecology of these two canals. The Grand Canal passes through Co. Offaly for more than half its length. Included are: physical characteristics, topography, water chemistry, dry habitats and aquatic plants, birds, mammals, amphibians, invertebrates and canal management.
 Key words: ecology; botany; zoology.
 Book.
- Caffrey, J.M., Monaghan, C. 1994 The occurrence of a rare Charophyte *Nitella tenuissima* Desv. Kutz in a newly constructed section of the Grand Canal. *Irish Naturalists' Journal* **24**: 405-408.
Monthly monitoring of aquatic plant colonisation found that the “diminutive” Stonewort *Nitella tenuissima* appeared in October 1991 and was not excluded by other, more vigorously growing species. Speculates an origin from dormant spore in peat and puddle clay brought from Geasehill.
 Key words: ecology; botany; non-vascular.
 Scientific Journal.
- Carpenter, G.H. 1896 Discovery of the genus *Atypus* in King's County. *Irish Naturalist* **V**: 167.
“an interesting addition to our Irish list of spiders”.
 Key words: ecology; zoology; invertebrates.
 Scientific Journal.
- Chandlee, T. 1893 *Euphorbia cyparissias* in King's County. *Irish Naturalist*. **II**: 250.
Cypress spurge. Garden escape.
 Key words: ecology; botany; vascular.
 Scientific Journal.
- Cooney, T. 1997 *Notes on the Breeding Waders of Blackwater Works, Co. Offaly*. Unpublished private report.
Estimates of breeding waders - lapwing *Vanellus vanellus*, redshank *Tringa totanus*, snipe *Gallinago gallinago*, common sandpiper *Actitis hypoleucos*, ringed plover *Charadrius hiaticula* - and other birds from 15 casual visits to a portion of this industrial bog in May 1997. A population of ringed plovers, hitherto unsuspected in the Midlands, was discovered.
 Key words: ecology; zoology; breeding birds; industrial cut-away peatlands.
- Cooney, T. 1998 *Survey of nesting Lapwings and other waders on cut-away bog and wetlands of Blackwater Bog and Lough Boora Parklands, Co. Offaly, 1998*. Unpublished report to Bord na Móna, Newbridge.
A total of 156 pairs of breeding waders were recorded from 11 sites (lapwing *Vanellus vanellus* 80; snipe *Gallinago gallinago* 27; redshank *Tringa totanus* 20; ringed plover *Charadrius hiaticula* 19; common sandpiper *Actitis hypoleucos* 10).
 Key words: ecology; zoology; breeding birds; industrially cut-away peatlands.

Cooney, T. 1998 Ringed Plovers *Charadrius hiaticula* nesting on cut-away peat in Co. Offaly. *Irish Birds* 6: 283-284.

Describes an instance of ringed plover nesting on bare peat and using shards of fossil bog wood to line the nest at Blackwater Bog complex,

Key words: ecology; zoology; breeding birds; industrially cut-away peatlands. Scientific Journal.

Copland, A. 2002 Delivering Corncrake *Crex crex* conservation in Ireland: past, present and future. *Irish Birds* 7: 33-42.

Includes references to the annual reports to BirdWatch Ireland, since 1991, of Corncrake fieldwork on the Shannon Callows. From these reports the numbers on sub-sites in Co. Offaly can be extracted.

Key words: ecology; zoology; breeding birds; seasonally flooded wet grassland. Scientific Journal.

Copland, A.S. 2007 *Avifauna of Bridges in Co. Offaly*. BirdWatch Ireland Conservation Report 12/07, for Offaly Co. Co.

74 bridges, on five watercourses, were surveyed for breeding birds, especially dipper *Cinclus cinclus* (but also other species), and 54 for dipper winter roosts. Each bridge is described separately. The densities of bridge-nesting dippers were low (0.1 per km river); 17 bridges had nests. 23 bridges are identified for nest box/ledge provision. See also Keely 2007.

Key words: ecology; zoology; birds. Offaly County Library Services.

Copland, A. 2011 *Bird Territory Mapping at Drinagh: Monitoring Impacts of Habitat Management. Survey Report 2011*. BirdWatch Ireland, Unpublished report to Bord na Móna.

Copland, A., Gallagher, C. 2014. *Bird Territory Mapping at Drinagh: Monitoring Impacts of Habitat Management. Survey Report 2014*. BirdWatch Ireland, Unpublished report to Bord na Móna.

These are two reports (see Copland, 2011) detailing habitat creation (mostly landscaping, scrub removal and rewetting) and the subsequent monitoring of breeding birds on 41ha of industrial cut-away bog in the Boora complex. Breeding waders were the focus but 256 territories of 28 species of birds were mapped in 2014.

Key words: ecology; ornithology. County Library Service

Cross, J.R. 1987 Unusual stands of Birch on bogs. *Irish Naturalists' Journal* 22: 305-310.

Describes vegetation of, and lists plant species from, a 20 ha swampy birchwood, unique in Ireland, on the wettest part of All Saint's Bog, Co. Offaly. Concludes that woodland has been present on this bog, or in the close vicinity, for a very long period.

Key words: ecology; botany; vascular; non-vascular; woodland; raised bog. Offaly County Library Service. Scientific Journal.

- Cross, J.R. 1992 The distribution, character and conservation of woodlands on esker ridges in Ireland. *Proceedings of the Royal Irish Academy* **92B**: 1 – 19.
Native woodland on eskers were surveyed and their conservation and relationship with ancient forests discussed. In Co.Offaly eskers at Ballaghansher; Blueball; Clonmacnoise; Mount Lucas; and Murphy's Bridge.
 Key words: ecology; botany; vascular.
 Scientific Journal.
- Cullen, M., Fox, H. 2001 Lichenized fungi (lichens) of Black Wood, Charleville Lake Wood and Charleville Demesne, Co. Offaly. Unpublished report.
A list of 258 lichens are recorded and their ecological positions and significance summarised. Confirms Charleville Woods as a "biodiversity hotspot" in Co Offaly and links Black Wood with Charleville Wood on the evidence of their lichen flora.
 Key words: ecology; botany; non-vascular; woodland.
 Offaly County Library Service.
- Curtis, T.G.F., Fitzgerald, R.A. 1993 *Pyrola media* Sw. in North Tipperary: sequel to an old botanical puzzle. *Irish Naturalists' Journal* **24**: 332-
Identifies a *Pyrola* sp found on the south side of Monaincha Bog as *P.media* Intermediate wintergreen, and discusses this record in relation to Heaton's *Pyrola* (see Walsh, 1978, 1998; Austin *et.al.* 2002).
 Key words: ecology; botany; vascular.
 Scientific Journal.
- Derwin, J. MacGowan, F. 2000 *A continuation of the investigation into the conservation and restoration of raised bog sites in Ireland.* Unpublished report, National Parks and Wildlife Service, Dublin.
 Key words: ecology.
- Doogue, D., Kelly, D.L. 1986 *Hedges of the Clonmacnoise District.* Unpublished report to the British Ecological Society, London.
Results are included in Tubridy, 1988.
 Key words: ecology; botany; vascular.
- Doyle, G.J., Duckett, J.G. 1985 The occurrence of *Lysichiton americanus* Hultén & St. John on Woodfield Bog, Co. Offaly (H18). *Irish Naturalists' Journal*. **21**: 536-8.
Describes the occurrence and associated plant communities of the American skunk-cabbage, an alien from the swamps and wet woodlands of south Alaska, planted by J.G.D.Lamb along with the pitcher plant *Sarracenia* in the 1930s. Its naturalisation on Irish Midland bogs "must be viewed with concern".
 Key words: ecology; botany; vascular; raised bog.
 Offaly County Library Service.
 Scientific Journal.

- Doyle, T., Dowding, P. 1990 Decomposition and aspects of the physical environment in the surface layers of Mongan Bog. In: Doyle, G.J. (ed.) 1990 *Ecology and Conservation of Irish Peatlands*. Royal Irish Academy, Dublin.
Using replicated cotton strips of pure cellulose inserted to a depth of 50cm, the decomposition rates of hummocks, hollows, *Sphagnum* lawns and pools on Mongan bog were investigated at three to four month periods in 1985 and 1986.
 Key words: ecology; botany; vascular; non-vascular; raised bog.
 Book.
- Dromey, M., Johnston, B., Keane, S. 1992 *Ecological Survey of the Grand Canal 1991*. Unpublished report to the Waterways Section and Wildlife Service of the Office of Public Works, Dublin.
In each one kilometre length of canal, the habitats (from boundary to channel) and vascular plant flora (including rare plants) are described in detail. The lengths of special scientific interest are indicated and the impacts on nature conservation of maintenance and recreation are discussed.
 Key words: ecology; botany.
 Offaly County Library Service.
- Duigan, C. 1987 The Cladocera (Crustacea) of Co. Offaly. *Bulletin of the Irish Biogeographical Society* **10**: 81-93.
At this time Co. Offaly was “a neglected county for aquatic fauna”. Eleven sites were sampled (including a repeat of 1977 sampling at four sites – Pallas Lake, Raheen Lough, Glaster Lake and Derryad Lough - and the results discussed.
 Key words: ecology; zoology; invertebrates.
 Scientific Journal.
- Egan, T. 1995 *Natural Re-colonisation of an Industrial Peatland Cut-away Area*. Diploma in Ecology Thesis, University College, Cork.
A vegetation description and map based on the following plant communities on colonising cut-away bog at Turraun, Boora: pioneer vegetation on younger cut-away peats (<3years old); pioneer vegetation on older exposed peats; wetland communities; grassland with wild flowers and grasses; *Molinia* dominated grasslands; heather dominated grasslands; open woodlands; *Juncus effusus* communities; reedbeds; *Campylopus introflexus* community.
 Key words: ecology; botany; vascular; non-vascular.
- Egan, T. (co-ordinator) 1998 The future use of cut-away bogs. *Proceedings from the first comprehensive conference on cut-away bogland rehabilitation, Lough Boora Parklands, May 1997*.
Papers include: pre-history; wilderness creation; agriculture; fishing; forestry; bird-life; archaeology and crafts. Most of the information relates to Co. Offaly, especially the Boora Complex.
 Key words: ecology; industrial cut-away peatlands.

- Feehan, J. 1979 *The landscape of Slieve Bloom – a study of its natural and human heritage*. Blackwater.
Includes detailed chapters on the geology, soils, plant-life, animal and bird-life, forests and moorland with constant reference to landscape and places. About one third of the Slieve Bloom is in Co. Offaly.
 Key words: ecology; botany; zoology; habitat.
 Book.
- Feehan, J. (ed) 2007 *County Offaly: The State of the Wild 2007*. Offaly County Council.
This is an account of what is known about every group of organism in the Plant, Fungi and Animal Kingdoms in Co. Offaly, from slime moulds to birds. It includes lists of all species known to occur to date. This is a comprehensively informative and well-illustrated publication and probably unique to date.
 Key words: ecology; plants; vascular; non-vascular; zoology; birds; mammals; reptiles; amphibians; fish; invertebrates.
 Offaly County Library Services
- Feehan, M. 1995 *The Chesterfield Owls*. Environmental Institute, University College Dublin and National Parks & Wildlife Service, Dublin. Unpublished report,
The prey of the Barn Owl *Tyto alba* is described by examining all the pellets (N=994) produced over a three year period (1987-1990) at a roost in the ruins of Chesterfield House, near Birr, Co. Offaly. Wood mice, house mice, brown rats, pygmy shrews, birds, frogs and bats were taken. The pattern of prey taken is discussed in relation to the prey's breeding cycle.
 Key words: ecology; zoology; birds.
 Offaly County Library Service.
- Feehan, J. 2009 *The Wildflowers of Offaly*. Offaly County Council.
A comprehensive account of flowers – wild, naturalised and garden escapes. Beautifully illustrated with large format photographs, supplemented with drawings reproduced from the illustrated North European floras of the 18th and 19th centuries. 510pp.
 Key words: ecology; botany; vascular.
 Offaly County Library Services
 Book

Feeley, H.B. and Kelly-Quinn, M. 2012 An evaluation of local and regional diversity of benthic macroinvertebrate communities in two small regions of Ireland and their potential as localised refugia for certain taxonomic groups. *Biology and Environment: Proceedings of the Royal Irish Academy* **112B**, No. 1, 43-54.

The stream beds of rivers in the Slieve Bloom Mountains were sampled. Total richness and diversity was high, despite individual streams tending to be low, suggesting that regional conservation is a priority. Stoneflies (Plecoptera), beetles (Coleoptera), caddis flies (Trichoptera) and mayflies (Ephemeroptera) are specially mentioned. Offaly rivers were Silver, Clodiagh, Camcor and a tributary of the Camcor below Clashroe. Also Mountrath, Owenass, Glenlahan, Barrow in Laois.

Key words: ecology; zoology; invertebrates.

Journal.

Foulkes, N., Murray, A. 2005 *County Offaly Hedgerow Survey Report*. Unpublished report to Offaly County Council.

113 kms of hedgerows, in 22 sample squares, were recorded for their extent, species composition, structure, condition and management. Each of these attributes is discussed and analysed in detail using graphs and tables. Roadside hedges (and townland boundaries) were the most species rich. Results are compared to Laois, Westmeath, Roscommon.

Recommendations.

Key words: ecology; botany; vascular.

Offaly County Library Services.

Flynn, C., Mcloughlin, N., Narberhaus, I. 1997 A study of the invertebrate fauna of two cut-away bog lakes in Co. Offaly. Department of Zoology, Trinity College Dublin. Unpublished report to Bord na Móna

A study of five aspects of the invertebrate fauna at Turraun and Boora lakes. These were: emergent insects; zooplankton; macrocrustaceans, water beetles; and dragonflies.

Key words: ecology; zoology; invertebrates; industrial cut-away peatland.

Flynn, C. 1998 *The chiromonid fauna of a cut-away bog lake in Co. Offaly*. Mod. Thesis, Department of Zoology, Trinity College Dublin.

Midges.

Key words: ecology; zoology; invertebrates; industrial cut-away peatland.

Foss, P.J., O'Connell, C. 1985 Notes on the ecology of *Sarracenia purpurea* L. on Irish peatlands. *Irish Naturalists' Journal* **21**. 440-3.

A detailed account of the various introductions and transplanting of the American alien carnivorous Pitcher Plant *Sarracenia* onto Irish raised and blanket bogs. Plant species from eight relevés are described from Woodfield Bog, Co. Offaly.

Key words: ecology; botany; vascular; raised bog.

Offaly County Library Service.

Scientific Journal.

- Foss,P.J. 1986 Field excursion to Clara Bog, Co. Offaly. *Bulletin of the Irish Biogeographical Society* **9**: 137-141.
Key words: ecology; raised bogs.
Scientific Journal.
- Galvin,P. 1993 *A study of the relationship between habitat functioning (for selected bird species) and major wetland processes in floodplain ecosystems. Final Report.* Unpublished report to the National Parks and Wildlife Service, Dublin. In part fulfilment of the STEP project; Functional Analysis of Wetland Ecosystems.
The two sites were the Little Brosna Callows and Clonmacnoise, on the River Shannon Callows. Selected bird species were: (wintering) wigeon *Anas penelope*, teal *Anas crecca*, pintail *Anas acuta*, mallard *Anas platyrhynchos*, shoveler *Anas clypeata*, lapwing *Vanellus vanellus* and golden plover *Pluvialis apricaria*; (breeding) lapwing, snipe *Gallinago gallinago*, redshank *Tringa totanus*, curlew *Numenius arquata*. Results included in Maltby *et.al*, 1996.
Key words: ecology; zoology, wintering birds, breeding birds; seasonally flooded wet grassland.
- Gibbons,D.W., Reid,J.B., Chapman,R.A. 1993 *New Atlas of Breeding Birds in Britain and Ireland, 1988-1991*. Poyser, London.
Based on the presence of bird species in 10 km squares.
Key words: ecology; zoology.
Book.
- Good,J. 1985 Invertebrates of Irish Midlands raised bogs: Part IV. *Bulletin of the Irish Biogeographical Society* **9**: 2-10.
Two Co. Offaly bogs were sampled - Clara Bog and Mongan Bog (as well as bogs in Kildare) – in order to determine which species are uniquely bog species.
Key words: ecology; zoology; invertebrates; raised bog.
Scientific Journal.
- Good,J. 1987 *A survey of the soil fauna of the Heritage Zone – a preliminary survey of the Staphylinidae (Coleoptera)*. Unpublished report to the Clonmacnoise Heritage Zone Group.
Beetles. Results are included in Tubridy, 1988.
Key words: ecology; zoology; invertebrates.
- Good,J. 1989 *Stenus palustris* Erichson (Coleoptera: Staphylinidae): a reed marsh beetle new to Ireland. *Irish Naturalists' Journal* **23**: 32.
Describes the occurrence of this beetle in reeds *Phragmites* marsh bordering Fin Lough in 1986.
Key words: ecology; zoology; invertebrates.
Scientific Journal.

Griffiths, H.I. 1999 Freshwater ostracoda from the Mesolithic lake site at Lough Boora, Co. Offaly. *Irish Journal of Earth Sciences* 17, 39-49.

Last Glaciation (Midlandian, 'Woodgrange') late-glacial and post-glacial (early Littletonian) 'chalk' or 'white' marl deposits, totalling 1.67m in depth, were analysed. Results showed an alternation between deep water and shallow-boggy lacustrine conditions that was local rather than regional and the lake environment is reconstructed. Mesolithic archaeology is associated with the later parts of this period.

Key words: ecology; zoology; invertebrates: Quaternary; Pleistocene; Holocene.

Journal.

Guinan,L., O'Connor,M., Sheehy-Skeffington,M. (1998) Small-scale vegetation patterns in a raised bog, Co. Offaly, and an Atlantic blanket bog, Co. Galway, Ireland. In: V.Standen, J.H.Tallis, R.Meade (eds), *Patterned Mires and Mire Pools – origin and development; flora and fauna*. Proceedings of British Ecological Society Mires Research Group Conference, Durham, April 1998.

A detailed vegetation study to find the minimum quadrat size necessary to describe smallest scale plant communities in well-defined hummock-hollow complexes on bogs. The site in Co. Offaly was Clara Bog. The vegetation patterns were related to microtopography and the results from each bog compared to each other and to similar Scottish studies.

Key words: ecology; botany; vascular; non-vascular; raised bog; blanket bog. Offaly County Library Service.

Heery,S. 1991 Plant communities of the grazed and mown grasslands of the River Shannon Callows. *Proceedings of the Royal Irish Academy* 91B: 1-19.

A phyto-sociological study using 267 relevés, mostly from the Co. Offaly sites of Little Brosna, Bullock Island and Clonmacnoise.

Key words: ecology; botany; vascular; seasonally flooded wet grassland. Scientific Journal.

Heery,S. 1993 *The Shannon Floodlands - a natural history of the River Shannon Callows*. Tír Eolas, Kinvara, Co. Galway. 165pp.

A well-illustrated account with chapters on pre-history, flooding, plant-life, bird-life, farming and nature conservation. About one third of the Callows are in Co. Offaly.

Key words: ecology; botany; vascular; zoology; birds; seasonally flooded wet grasslands.

Book.

- Heery,S. 1995 Flooding in Spring on the Callows at Shannon Harbour, 1961-94. *Biology and Environment: Proceedings of the Royal Irish Academy* **95B**: 3, 179-182.
Presents the flooding regime at weekly intervals, in graphic form, during the months of March, April and May, 1961 - 1994, based on data correlating the automatic river-level gauge readings with actual flooding conditions, 1987-1993, and extrapolating back to 1961. Discusses briefly in relation to decline in lapwing numbers.
 Key words: ecology; breeding birds; seasonally flooded wet grassland.
 Offaly County Library Service.
 Scientific Journal.
- Heery,S. 1996, 2000, 2004, 2009, 2012, 2018 *Birds in Central Ireland – 1st, 2nd, 3rd, 4th, 5th, 6th mid-Shannon Bird Reports*. BirdWatch Ireland.
In total, these reports present accounts of about 160 bird species based on over 4,500 records from the middle Shannon catchment area, 1992 - 2016. About half of the records are from Co. Offaly (the western half). Published pre-1992 records are also presented.
 Key words: ecology; zoology; birds.
 Offaly County Library Services.
 Book.
- Heery,S. 1998 *Rare and scarce plants on the Shannon Callows*. Unpublished report to Duchas, The Heritage Service, Dublin.
Presents occurrence and plant communities, at 24 sites, of the following plant species on the Shannon Callows, all present in Co. Offaly: opposite-leaved pondweed *Groenlandia densa*, summer snowflake *Leucojum aestivum*; green-winged orchid *Orchis morio*; meadow barley *Hordeum secalinum*; and marsh pea *Lathyrus palustris*.
 Key words: ecology; botany; vascular; seasonally flooded wet grassland.
- Heery,S. 1999 *Habitat Survey and Conservation Evaluation of Lough Boora Parklands*. Unpublished report to Lough Boora Parklands Group, Boora and Bord na Móna, Newbridge.
The habitats are re-colonising industrial cut-away peatland, including artificially created wetlands. Reviews previous work and presents specially commissioned on-site data. The evaluation is based mostly on species lists of higher plants, bryophytes (limited), lichens (limited), dragonflies, moths and butterflies, and birds. Cut-aways are of high, and increasing, conservation value.
 Key words: ecology; botany; vascular; non-vascular; zoology; invertebrates; birds; nature conservation designation.
 Offaly County Library Service.

- Heery,S. 2001 *The Selection of Biodiversity Areas in the Slieve Bloom Forest Management Unit – a pilot survey*. 45 pp. Final Report to Coillte Teo., Newtownmountkennedy.
Gives a summary account of habitats in, ecological characteristic of, the rationale for and recommended management for 11 Biodiversity Areas selected within the Coillte-owned land in Co. Offaly, amounting to almost 350 ha. Detailed descriptions for each site are held with Coillte.
 Key words: ecology; botany, vascular; woodland; habitat; nature conservation.
- Heery,S., Dunne,F., Roche,N 2003 *The Selection of Biodiversity Areas in the Midland Forest Management Unit, 2002*. Final Report to Coillte Teo., Newtownmountkennedy.
Gives a summary account of habitats in, ecological characteristic of, the rationale for and recommended management for 33 Biodiversity Areas selected within the Coillte-owned land. Eleven are in Co. Offaly and amount to 592 ha. Detailed descriptions for each site are held with Coillte.
 Key words: ecology; botany, vascular; woodland; habitat; nature conservation.
 Unpublished report.
- Heery,S. 2007 *A survey of tufa-forming (petrifying) springs in the Slieve Bloom, Ireland*. Unpublished report for Offaly and Laois County Councils.
In Offaly, 14 tufa springs, in four valleys, are described (and a further 6 in Laois). 9 types of tufa formation were present (including 6 variations of ‘cascade’), all inextricably associated with bryophyte species. Each spring has a site description containing (on the CD version) a useful photographic collection. Includes a snail survey and general discussion of tufa springs.
 Key words: ecology; botany; vascular; non-vascular; zoology; invertebrates; geology; Quaternary; Holocene.
 Offaly County Library Services
- Heery, S., Moorkens, E., Campbell, C. 2014 An Account of Tufa-forming (Petrifying) Spring Habitats in the Slieve Bloom Mountains, Ireland. *Biology and Environment: Proceedings of the Royal Irish Academy*, Vol 114B, No. 1, 1-11.
Based on Heery (2007). The living molluscan fauna included the rare *Vertigo geyeri*, *Zenobiella subrufescens* and *Spermodea lamellata* among eight notable species. Of twelve bryophyte species *Didymodon tophaceus* was a first record for Offaly. The discussion suggests the special biodiversity importance of the Slieve Bloom valleys in terms of these springs coupled with the benthic fauna described in Feeley and Kelly-Quin (2012).
 Key words: ecology; zoology; invertebrates; botany; vascular; non-vascular; geology; Quaternary; Holocene.
 County Library Service.
 Journal.

- Heery,S., McCorry 2010 A base-line study of a tufa (petrifying) spring site at Glinsk, Camcor valley, Kinnitty, Co. Offaly. Unpublished report to Coillte and Offaly County Council.
This 0.5ha site in the Slieve Bloom, clear felled of conifers in 2006, contains two classic tufa/moss mounds. The study will allow the monitoring of changes after exposure to light. Outputs (including CD): a full bryophyte report with photos, a GIS-based contour map, photographic record from fixed points, vascular plant species in permanent quadrats and devices to measure the upward and lateral growth of one of the tufa mounds.
 Key words: ecology; vascular plants; non-vascular plants; geology; Holocene.
 Offaly County Library Service
- Herbert,I.J., Heery,S., Meredith,C.R.M. 1990 Distribution of breeding waders in relation to habitat features on the River Shannon Callows at Shannon Harbour, Ireland. *Irish Birds* 4, 203-216.
Changes in the numbers of breeding lapwing *Vanellus vanellus*, redshank *Tringa totanus*, snipe *Gallinago gallinago* and curlew *Numenius arquata* in the years 1987, 1988 and 1989 are related to changes in land-use and wetness of the ground at this Co. Offaly site.
 Key words: ecology; zoology, breeding birds; seasonally flooded wet grassland.
 Scientific Journal.
- Herbert,I.J.,Heery,S., Meredith,C.R.M., 1994 Population trends in breeding waders at Shannon Harbour. *Irish Birds* 5, 207.
The results of annual counts from 1987 to 1994 at this site highlight the dramatic decline in numbers of breeding lapwing *Vanellus vanellu* and redshank *Tringa totanus*. Numbers of curlew *Numenius arquata* and snipe *Gallinago gallinago* remained stable.
 Key words: ecology; zoology; breeding birds; seasonally flooded wet grassland.
 Scientific Journal.
- Higgins,D. 1984a Invertebrates on Irish Midland raised bogs. Part 1. Arenae, Ophiones,Chilopoda. *Bulletin of the Irish Biogeographical Society*. 8:91-97.
 Key words: ecology; zoology.
 Scientific Journal.
- Higgins,D. 1984b Invertebrates of Irish Midlands raised bogs: Part 3. *Bulletin of the Irish Biogeographical Society* 8: 91 – 97.
 Key words: ecology; zoology.
 Scientific Journal.

- Higgins, G.T., Martin, J.R., Perrin, P.M. 2004 *National Survey of Native Woodlands in Ireland*. A report to National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
Includes detailed descriptions of almost 30 woods in west Offaly, west of a line between Clara and Blueball (see also van der Sleeson & Poole, 2002).
 Key words: ecology; botany; vascular; non-vascular.
 Unpublished report.
- Higgins, T., Kenny, H. and Colleran, E. 2007. Plankton communities of artificial lakes created on Irish cutaway peatlands. *Biology and Environment; Proceedings of the Royal Irish Academy* **107B**, No. 2, 77-85.
Two of the lakes sampled for zooplankton communities in 2003 were in the Boora complex – Turraun and Clongowny. The lakes had contrasting community features reflecting differences in age, substrate and trophic status. Low densities at Turraun, the oldest lake, paralleled a rich macroinvertebrate population higher up the food chain. Relationships with phytoplankton, lower down the food chain, are also discussed.
 Key words: ecology; zoology; invertebrates.
 Journal.
- Hill, M.O., Preston, C.D., Smith, A.J.E., 1994 *Atlas of the Bryophytes of Britain and Ireland*. Harley Books.
Each species' map, with 10 km square distribution, is accompanied by notes on its habitat, reproductive biology and overseas distribution, and additional maps are included to illustrate various factors affecting distribution.
 Key words: ecology, non-vascular plants.
 Book.
- Hill, R. 1992 The origin and dynamics of the birchwood on Clara Bog, Co. Offaly. Unpublished report, School of Botany, Trinity College, Dublin.
 Key words: ecology; botany: woodland; raised bog.
- Hobson, D.D. 1993 *POPULUS NIGRA* L. IN IRELAND – AN INDIGENOUS SPECIES ? *Irish Naturalists' Journal* **25**: 244-246.
In a new Irish survey of the distribution of this species, one of the rarest trees in Europe, twenty-nine trees were found in Co. Offaly. Records are kept by the Botanical Society of the British Isles. The paper concludes that the species is native to Ireland.
 Key words: ecology; botany; vascular.
 Offaly County Library Service.
 Scientific Journal.

- Hooijer, A., 1996 *Floodplain hydrology – an ecologically oriented study of the Shannon Callows, Ireland*. Ph.D.- thesis, Free University of Amsterdam.
A very detailed analysis of the hydrology of the Shannon Callows in relation to palaeo-ecological conditions, callows ecology (including plant communities), sub-callows sediments, catchment hydrology and historical land-cover. The two main sampling sites were Clonmacnoise and Little Brosna (part of the FAEWE project, see Maltby *et. al.* 1996).
 Key words: ecology; botany; vascular; Quaternary; seasonally flooded wet grassland.
 Available in several Irish University libraries.
- Hudson, J., Tierney, T.D., Casey, C. 2002 Breeding waders on cut-away bog in Co. Offaly. *Irish Birds* 7: 1, 61-64.
A census of breeding lapwing *Vanellus vanellus*, redshank *Tringa totanus*, snipe *Gallinago gallinago*, curlew *Numenius arquata*, common sandpiper *Actitis hypoleucos* and ringed plover *Charadrius hiaticula* at 12 sites in the wider Boora complex and Blackwater Works (see also Cooney, 1998).
 Key words: ecology; zoology; breeding birds; industrial cut-away peatlands.
 Scientific Journal.
- Hussey, V. 1992 *Levelling on Clara Bog*. Unpublished report to the National Parks and Wildlife Service, Dublin.
- Hutton Bury, D.W.B. 1967 *The Charveville Woods – a comparative study*. B.A (Mod) thesis, University College Dublin.
 Key words: ecology; botany; vascular; non-vascular; woodlands.
- Igoe, F., Byrne, C., McKeown, N. 2003 *The Croneen Trout – A Biological Assessment*. Unpublished report to the Heritage Council.
A unique race of migratory brown trout which uses the Little Brosna and Camcor Rivers as a spawning and nursery area and subsequently migrates to Lough Derg to feed. Detailed biological measurements, parasite and genetic tissue analysis were made on 20 specimens and conservation issues discussed. Reference is also made to reports on a questionnaire and interviews re this fish, conducted around Birr.
 Key words: ecology; zoology; fish.
 Offaly County Library Services.
- Johnson, O. 2003 *Champion trees of Britain and Ireland*. Whittet Books.
Gives the locations of the largest specimen of exotic and native trees in these islands. An impressive 45 are listed for Birr Castle Demesne - all are exotics apart from the Grey Poplar. Published for the Tree Register of the British Isles.
 Key words: ecology; botany; vascular.

- Kavanagh, B. 1990 - 1995. *Annual Reports*. Unpublished reports to Bord na Móna, Newbridge
A series of reports on the creation and development of a nature reserve on industrial cut-away peatlands at Turraun, Boora from its earliest stages of recolonisation. Reports cover: base-line ecological information; seasonal use of the lake by birds; development and creation of a nature reserve; and further monitoring of the reserve.
 Key words: ecology; botany; vascular.
- Kavanagh, B. 1998 Can the Irish Grey Partridge (*Perdix perdix*) be saved? *Gibier Faune Sauvage, Game Wildlife* **15** (4): 533-546.
Outlines aspects of a suggested National Conservation Strategy and emphasises the need to keep the last of the remaining wild population of the Irish grey partridge at Boora in a numerically viable state.
 Key words: ecology; zoology; breeding birds; industrial cut-away peatland. Scientific Journal.
- Kavanagh, B. 1990 Bird communities of two short rotation forestry plantations on cut-over peatland. *Irish Birds* **4**:169-180.
Describes the bird communities on two plots (7.2 and 6.2 ha) of c 10 year old broad-leaved trees planted onto industrial cut-way bog as part of an experimental bio-energy production programme. Three aspects of the communities were investigated: 1. a species inventory; 2. seasonal changes; and 3. detailed territory mapping.
 Key words: ecology; zoology; breeding birds; industrial cut-away peatland; woodland. Scientific Journal.
- Kavanagh, I. 1997 Mistress of the microscope. In: Women in Technology & Science (WITS)(eds) *Stars, Shells and Bluebells*. WITS, Dublin. 9pp
This is a short biography of Mary Ward (1827-1869), born Ferbane, Co. Offaly. A pioneer of the microscope, she produced many scientific drawings of plants, insects and other wildlife. She also wrote and published on the microscope and natural history. Includes 17 'notes and sources'.
 Key words: ecology.
 Book.
- Keeley, B. 2007 *Bats and Bridges – an evaluation of selected bridges in Laois and Offaly*. Unpublished report for Offaly and Laois County Councils.
51 bridges in Co. Offaly were assessed for bat roosts and their potential for such. 7 had occupancy and a further 11 had suitable crevices. Daubenton's bat *Myotis daubentonii* was the commonest of three species. Masonry arch bridges offer the best opportunities for bats; crevices are pivotal. Includes 19 detailed recommendations for Council bridge engineers. See Copeland 2007.
 Key words: ecology; zoology; mammals.
 Offaly County Library Service.

Kelly, M.L. 1993 *Hydrology, hydrochemistry and vegetation of two raised bogs in Co. Offaly*. Ph.D.- thesis, University of Dublin.

Some data are included in Schouten, 2002.

Key words: ecology; botany; vascular; non-vascular.

Kelly, L. 1994 *A study of the vegetation of Clara Bog*. Ph.D.- thesis, Trinity college Dublin.

Key words: ecology; botany; vascular; non-vascular; raised bog.

Kemp, A.C. 1997 *Invertebrate predation by damselfly nymphs in a cut-away bog lake*. B.A.(Mod.) thesis, Zoology Department, Trinity College Dublin.

Three sites within Turraun were studied: the main lake body; drainage ditch; and exposed marl. Prey items are listed.

Key words: ecology; zoology; invertebrates; industrial cut-away peatland; lakes.

Kenny, K., Copland, A. S., McMahon, B. J. 2015 *Timing of Mowing for the Conservation of Whinchat (*Saxicola rubreta*) in Ireland*. In: Bastion H-V, Feulner J. (Eds.): *Living on the Edge of Extinction in Europe. Proc. 1st European Whinchat Symposium: 227-232*. LBV Hof, Helmbrechts. (based on Master of Wildlife Conservation and Management degree thesis, University College, Dublin).

Six sites were studied in 2014 on 600 ha of Shannon Callows hay meadows to determine breeding success. Three sites (347ha) were in Co. Offaly, namely Bullock Island (Shannon Harbour), Banragh (Shannonbridge) and Lusmagh (Banagher). There were 23 territories (seven in Offaly) and 82% breeding success. 75.1% (the figure needed for a stable population) of these fledged between 5-27th July.

Key words: zoology; ornithology.

Offaly County Library Services.

Journal (Proceedings)

Kirschner, J. 1993 *A note on Luzula SECTION Luzula (Juncaceae) in Ireland, with special reference to Luzula pallidula Kirschner*. *Irish Naturalists' Journal* **24**: 297.

Records a Belfast herbarium undated specimen of fen woodrush (syn. *L. pallescens*) from 'Sea Gull Bog', Co. Offaly by M.P.H. Kertland. The authors could not locate the bog (which is probably now industrially cut-away). See also Praeger (1894).

Key words: ecology; botany; vascular.

Scientific Journal.

- King, A.L.K. 1956 An extension of the range of *Mentha rotundifolia* (Cloncreen Bog). *Irish Naturalists' Journal XI*: 71.
Round-leaved mint. *Mentha suaveolens*. An introduced plant species.
 Key words: ecology; botany; vascular; raised bog.
 Scientific Journal.
- Kneale, P. 1987 *Fin Lough Report*. Unpublished report to the Clonmacnoise Heritage Zone Group.
Results are included in Tubridy, 1988.
 Key words: ecology; botany; vascular, non-vascular; fen.
- Lamb, J.G.D. 1936 *Lycopodium inundatum* in Offaly. *Irish Naturalists' Journal VI*: 21.
Found "while walking on the part of the bog at Woodfield House, Clara, known as Kilmalady". Marsh clubmoss. *Lycopodiella inundata*.
 Key words: ecology; botany; vascular; raised bog.
 Offaly County Library Service.
 Scientific Journal.
- Lamb, J.G.D., 1940 *Lemna polyrrhiza* L. in S.E. Galway. *Irish Naturalists' Journal*.
Found "in an artificial inlet just below the bridge" at Banagher, on the Galway side of the River Shannon. Thought to be previously unrecorded in S.E. Galway.
 Key words: ecology; botany; vascular; river.
 Offaly County Library Service.
 Scientific Journal.
- Lamb, K. 1947 Plants new to Offaly and Westmeath. *Irish Naturalists' Journal IX*: 30.
Lesser spearwort *Ranunculus lingua* L. near Ferbane; motherwort *Leonurus cardiaca* L. in the ruins of Kilcolgan Castle; frogbit *Hydrocharis morsus-ranae* L. in drains at Kilmucklin; and red hemp-nettle *Galeopsis angustifolia* Ehrh. on the railway line at Sponan castle near Horseleap.
 Key words: ecology; botany; vascular; built and artificial surfaces.
 Scientific Journal.
- Lamb, J. G. D. 1968 *Lycopodium inundatum* thirty-two years later. *Irish Naturalists' Journal Vol. 16*, No. 4, p107.
A *Lycopodium* site (see Lamb, 1936) on a bog at Woodfield House, Clara (Kilmalady) was revisited in July 1968 and the species was found to have probably increased a little.
 Key words: ecology; botany; vascular; raised bog.
 Offaly County Library Service
 Scientific Journal

- Lamb,H. 1974 *Neottia nidus-avis* and *Atropa belladonna* in Co. Offaly. *Irish Naturalists' Journal* **18**: 95.
Bird's nest orchid and deadly nightshade were found growing on an esker woodland 1.75 miles SE Ballygowan in 1973. The wood was mainly hazel with occasional beech trees. It was "likely to be cleared within the next few years".
 Key words: ecology; botany; vascular.
 Offaly County Library Service.
 Scientific Journal.
- Lockhart,N. 1986 *The vegetation of Clonmacnoise callows*. Unpublished report to the Clonmacnoise Heritage Zone Group.
Results included in Tubridy, 1988.
 Key words: ecology; botany; vascular; non-vascular; seasonally flooded wet grasslands.
- Lockhart, N., Hodgetts, N. & Holyoak, D. 2012 *Rare and Threatened Bryophytes of Ireland*. National Museums Northern Ireland, Holywood.
Mentions Clara Bog as a new Important Bryophyte Area.
 Key words: ecology; botany; non-vascular.
 Book.
- Lucey,F. 1997 *A survey of the vegetation of the fen at Island, Clareen, Co. Offaly with special reference to Juniperus communis*. Thesis for the Diploma in Field Ecology, University College, Cork.
A study of the plant communities of a fen and turlough (rare habitats in Co. Offaly) and Juniper scrub (unique in the county) along a tributary of the Camcor River. Species-richness, including orchid-richness, is highlighted and the potential succession of the Juniper scrub is discussed.
 Key words: ecology; botany; vascular.
 Offaly County Library Service.
- Madden,B.1987 Birds of Mongan Bog, Co. Offaly. *Irish Birds* **3**: 441-8.
Almost monthly visits during 1985 were made to monitor bird usage on 132 ha of raised bog dome and 18 ha of heathland and scrub on cut-over bog at Mongan Bog. Snipe, curlew, meadow pipit, skylark and mallard were breeding on the dome; 19 species were breeding on the cut-over. In total, 37 species were seen, including short-eared owl and corncrake.
 Key words: ecology; zoology; breeding birds; raised bog; cut-over bog.
 Scientific Journal.

Madden, B., Doyle, G.J. 1990 Primary Production on Mongan Bog. In: Doyle, G.J. (ed.) *Ecology and Conservation of Irish Peatlands*. 147-162. Royal Irish Academy, Dublin.

The first account of the productivity of an Irish raised bog. Data presented on the following groups: Ling heather *Calluna vulgaris*, cross-leaved heather *Erica tetralix*, bog asphodel /cranberry *Andromeda sp/Vaccinium oxycoccus*, bog cottons *Eriophorum* spp, white-beaked sedge *Rhynchospora alba*, carnation sedge *Carex panicea*, bryophytes, lichens, litter and below ground parts of heathers. Data collected during 1985.

Key words: ecology; botany; vascular; non-vascular.

McNally, A., Doyle, G.J. 1984a A study of sub-fossil pine layers in a raised bog complex in the Irish Midlands. I. Palaeowoodland extent and dynamics.

Proceedings of the Royal Irish Academy. **84B**: 57-70.

Using dendrochronology ('tree-ring' analysis) and radio-carbon dating of Scot's pine from a layer within the peat, a 'woodland phase' during raised bog development 4,000-3,5000 radio-carbon years B.P was investigated.

Duration, tree density and woodland structure and regeneration at three sites are reconstructed. Sites in Co. Offaly were industrial cut-away at Glashabaun (N675291) and Ballycon (N550268) (also Timahoe, Co. Kildare). Comparisons with extant pinewoods are made (see McNally and Doyle, 1984b).

Key words: ecology; geology; Quaternary; Holocene; palaeo-botany. Scientific Journal.

McNally, A., Doyle, G.J. 1984b A study of sub-fossil pine layers in a raised bog complex in the Irish Midlands. II. Seral relationships and floristics.

Proceedings of the Royal Irish Academy. **84B**: 71 – 81.

Using pollen analysis and macrofossils the succession (during 1,250 years) of the 'woodland phase' from bog cotton *Eriophorum*-dominated, through dwarf shrub (heather *Calluna*) and birch scrub to a Scot's pine/ birch wood is documented. The site used was Glashabaun, Co. Offaly (see also McNally and Doyle, 1984a). Comparisons with extant pinewoods are made

Key words: ecology; geology; Quaternary; Holocene; palaeo-botany. Scientific Journal.

Maher, C., Gormally, M., Williams, C., Sheehy Skeffington, M. 2014 Atlantic floodplain meadows: influence of hydrological gradients and management on sciomyzid (Diptera) assemblages. *Journal of Insect Conservation*, Vol 18, Issue 2, pp267-282. DOI 10.1007/s10841-014-9630-z

Marsh ('snail-killing') flies and hoverflies were studied and analysed against detailed environmental variables, including length of time and depth of flooding (hydro-period) at twelve hay meadow sites on the River Shannon callows. Eight sites were in Offaly, namely Clonmacnoise, Leitra, Kilaphort, Derryholmes, Moystown, Bullock Island, Lusmagh co-meadow and Lusmagh private. Twenty-two species of marshflies (over one third of Irish total) and their environmental preferences are listed.

Key words: ecology; zoology; invertebrates; hydrology.

County Library Service.

Journal

Based on PhD, National University of Ireland, Galway (2013).

Maher, C., Sheehy Skeffington, M., Gormally, M. 2015 Hydroperiod and Traditional Farming Practices Drive Plant Community Composition on Unregulated Atlantic Floodplain Meadows. *Wetlands*, Vol 35, Issue 2, pp263-279. DOI 10.1007/s13157-014-0616-0

The plant communities at twelve hay meadow sites on the River Shannon callows were studied, using 141 releves. The Offaly sites were: namely Clonmacnoise, Leitra, Kilaphort, Derryholmes, Moystown, Bullock Island, Lusmagh co-meadow and Lusmagh private. Mean flood duration (hydroperiod), based on precise elevation and water level data (1990-2009), ranged from <50 to >185 days per year depending on the vegetation zone identified.

Key words: ecology; botany; hydrology.

County Library Service.

Journal

Based on PhD, National University of Ireland, Galway (2013).

Maltby, E., Hogan, D. V., McInnes, R. J. 1996 *Functional Analysis of European wetland Ecosystems (FAEWE). Final Report – Phase One*. European Union report: EC DGX11 STEP PROJECT CT90-0084, Brussels. Unpublished report, Duchas The Heritage Service, Dublin.

An major study of the hydrology, vegetation, soils and fauna of four 'river corridor' wetlands in Europe. The Irish site was the Shannon Callows and the sub-sites studied were both in Co. Offaly: Little Brosna callows and Clonmacnoise callows. The other sites were: Torridge headwaters, UK; 'Bec d'Allier', France; and Giguela-Zancara headwaters, Spain.

Key words: ecology; botany; vascular; non-vascular; zoology; birds; invertebrates; seasonally flooded grasslands.

Minogue,R. 2001 *A study of the possible uses of cutaway fro recreational forestry in County Offaly*. Unpublished report to Offaly County Council.

An outline plan to create a New Forest on industrial cut-away peatlands. The study was part of the Ecos-Ouverture, Eco: Regional Programme (in partnership with Austria, Czech Republic, Latvia and Finland). Discusses the cutaway habitat, literature and policy review, carbon sequestration, public attitudes and a pilot project at Boora.

Key words: ecology; habitat creation; woodland.

Offaly County Library Service.

Mitchell,F.J.G., Connolly,A. 1993 *The development of Lough Roe*. School of Botany, Trinity College, Dublin.

Referenced in Chapter 6, Schouten, 2002.

Key words: ecology; raised bog.

Monaghan,C., Caffrey,J.M. 1996 *Macroplea appendicualta* (Coleoptera) in the Royal and Grand Canals: a rarity or an overlooked species in Ireland. *Bulletin of the Irish Biogeographical Society*. **19**: 182-188.

Key words: ecology; zoology; invertebrates.

Scientific Journal.

Moore,J.J. 1954 *Ramischia (Pyrola) secunda* in Offaly. *Irish Naturalists' Journal*. **XI**: 206.

A preliminary note on the presence of *Orthilia secunda* Serrated wintergreen on Pollagh Bog prior to a fuller survey (see Moore, 1956).

Key words: ecology; botany; vascular; raised bog.

Offaly County Library Service.

Scientific Journal.

Moore,J.J. 1955 The distribution and ecology of *Scheuchzeria palustris* on a raised bog in Co. Offaly. *Irish Naturalists' Journal* **XI**:12, 321-329.

Vegetation map and species lists showing 16 plant communities and the past and present distribution of the Rannoch Rush (from fossil rhizomes). Presently found in *Sphnum cuspidatum* pools and wet soak with large leaved *Sphagna*. Discusses its status: if the species is recently introduced or disappearing and finds neither hypothesis likely.

Key words: ecology; botany; vascular; non-vascular; raised bog.

Scientific Journal.

Moore,J.J. 1956 Plants associated with *Ramischia (Pyrola) secunda* on Pollagh Bog, Offaly. *Irish Naturalists' Journal*. **XII**: 42.

***Orthilia secunda* Serrated wintergreen found in 1953, 30 yds from the *Scheuchzeria palustris*. Interconnected dead and living rhizomes gave the appearance of being a single clone. Distribution is "Scottish" so its presence in Offaly was thought to be "rather surprising"**

Key words: ecology; botany; vascular; raised bog.

Offaly County Library Service.

Scientific Journal.

- Moore, J.J. 1959 (*Scheuchzeria palustris*...transplanted). *Irish Naturalists' Journal*. **XIII**: 102.
Because Pollagh Bog was to be used for peat production, specimens of the Rannoch Rush were transplanted to the centre of Raheenmore bog and Loe Roe, Clara Bog in June 1959.
 Key words: ecology; botany; vascular; raised bog.
 Scientific Journal.
- Moorkens, E.A., 1998 *An inventory of Mollusca in potential SAC sites, with special reference to Vertigo angustior, V. moulinsiana and V. geyeri*. Unpublished report to Duchas The Heritage Service, Dublin.
Gives detailed accounts of seven sites in Co. Offaly: Mongan Bog; Killaun Bog; Charleville Wood; Clara Bog; Sharavogue Bog; Fin Lough; and Birr.
 Key words: ecology; zoology; invertebrates; raised bog; woodland; fen.
- Nairn, R.G.W., 1986 *The Birds of Clonmacnoise callows, 1986 - a preliminary account*. Unpublished report to the Clonmacnoise Heritage Zone Group.
Results included in Tubridy, 1988.
 Key words: ecology; zoology; breeding birds; seasonally flooded wet grasslands.
- Nairn, R.G.W., Herbert, I.J., Heery, S. 1988 Breeding waders and other wet grassland birds on the River Shannon Callows. *Irish Birds* **3**: 521-38.
The first census of breeding pairs of lapwing *Vanellus vanellus* (341), redshank *Tringa totanus* (400), snipe *Gallinago gallinago* (437 displaying) and curlew *Numenius arquata* (48, some territories including adjacent bog) on the Callows. Such high numbers had not been previously suspected. About one third of the Callows are in Co. Offaly.
 Key words: ecology; zoology; breeding birds; seasonally flooded wet grassland.
 Scientific Journal.
- Nash, D.W. 1995 Stations for *Senecio viscosus* L. in Ireland. *Irish Naturalists' Journal* **25**: 59-64.
Post-1970 records for the introduced plant species Sticky Groundsel include three (out of a total of about 46) in Co. Offaly, during a non-random search of suitable sites. The sites were: Edenderry, Tullamore railway station and Portarlinton station. The plant's spread along lines of rail is discussed.
 Key words: ecology; botany; vascular.
 Scientific Journal.
- Neenan, M., Lyons, G. 1980 *Production of Energy from Short Rotation Forestry*. An Foras Taluntais, Dublin.
 Key words: ecology; industrial cut-away peatlands; woodlands.

- Nelson, B., Thompson, R. 2004 *The Natural History of Ireland's Dragonflies*. Ulster Museum, Belfast.
A definitive work, with atlas maps showing the presence of dragonflies in 10 km squares. Co. Offaly dragonflies can be deduced from these maps. Sites in Co. Offaly - Finnamore Lake in the Lough Boora Parklands, the Grand Canal at Ballyshane; Clara Bog, Pallas Lough - receive a special mention with photographs in Chapter 8.
 Key words: ecology; zoology; invertebrates.
 Book.
- Nicholson, S. 1839 Valuation of callowlands between Lough Derg and Athlone. Appendix B. In: 5th Report of the Commissioners for the Improvement of the Navigation of the River Shannon. H.M.S.O., Dublin.
A brief, but informative, description of the nature and quality of the soils, pasture and meadows of the callows in each of the 150 townlands along the River Shannon from Portumna to Athlone. About one third are in Co. Offaly. Three entries are quoted in Heery (1993) with maps. Also includes maps and valuations.
 Key words: ecology; seasonally flooded wet grassland; farming.
 Royal Irish Academy.
- Nolan, M. 2007 Two spiders (ARANEAE) new to Ireland from raised bog:
Hypsosinga albovittata (Westring) (ARANEIDAE) and *Minicia marginella* (Wider) (LINYPHIIDAE). *Bulletin of the Irish Biogeographical Society*. **31**: 101-166.
The former was collected from two raised bogs, Lodge Bog in Co. Kildare and Clara Bog in Co. Offaly. The latter was found at Clara Bog. The question is asked whether the presence of *Betula* woodland is influential.
 Key words: ecology; zoology; invertebrates.
 Offaly County Library Service.
 Scientific Journal.
- Nolan, M. 2008 First records of three spider species in Ireland (ARANEAE):
Glyphesis cottonae (La Touche), *Mioxena blanda* (Simon) (LINYPHIIDAE) and *Segestria florentina* (Rossi) (SEGESTRIIDAE). *Bulletin of the Irish Biogeographical Society*. **32**: 132-141.
Only *Glyphesis cottonae* was collected from Co. Offaly – All Saint's Bog. The traps were set in an open flushed area of bog lying between the main *Betula* woodland and a copse of Scots pine. The location had pools and well-developed *Sphagnum* hummocks with *Empetrum nigrum*, overgrown with *Calluna vulgaris*. The spider may be internationally threatened.
 Key words: ecology; zoology; invertebrates.
 Offaly County Library Service.
 Scientific Journal

- Nolan, M. 2009 *Walckenaeria alticeps* (Denis, 1952) (ARENIAE: LINIPHIDIAE) – new to Ireland from two raised bogs in Co. Offaly. *Bulletin of the Irish Biogeographical Society*. 33: 174-183.
This spider species was collected from Clara bog and All Saint's bog. Habitat details and a discussion of possible habitat preferences are presented. It is suggested that the presence of bog woodland at both sites may be of significance. As *W. alticeps* can be confused with *W. antica*, identification issues are discussed.
 Key words: ecology; zoology; invertebrates.
 Scientific Journal
 Offaly County Library Services.
- O'Brien, G. 1997 *Ecology of the sticklebacks of Turraun Lake, Co. Offaly*
 Moderatorship thesis, Department of Zoology, Trinity College Dublin.
A study of the 3-spined stickleback *Gasterosteus aculeatus* and the 9-spined stickleback *Pungitius pungitius*. Prey items are listed. To find the two species together is characteristic of circum-bog situations.
 Key words: ecology; zoology; fish; invertebrates; industrial cut-away peatlands.
- O'Connor, A., Kavanagh, B., Reynolds, J.D. 2000 Corixidae (Hemiptera Heteroptera) in two artificial lakes on Irish cut-away. *Verh. Internat. Verein. Limnol.* **22**:1670-1674.
 Key words: ecology; zoology; invertebrates; industrial cut-away peatlands.
 Scientific Journal.
- O'Connor, A., Reynolds, J.D., Kavanagh, B. 2001 Aquatic macro-invertebrate colonisation of artificial waterbodies in cut-away oceanic raised bog in Ireland. *Proceedings of the 11th Peatland Congress, eds J. Rochefort, J – Y Daigle.*
 Key words: ecology; zoology; invertebrates; industrial cut-away peatlands.
- O'Connor, J.P., Speight, M.C.D. 1987 *Macrosiphum albifrons*, *Dictenidia bimaculata*, *Callaspidia defonscolombeii* and *Xylapsis petiolata*: insects new to Ireland. *Irish Naturalists' Journal* **22**:199 – 210.
***D. maculata* (L.) (Diptera: Tilulipidae) was found flying in birchwood at Clara Bog and hatching from a rotten birch stump at All Saint's Bog, Co. Offaly. The fly is "recognised as a threatened species in Europe today" and is part of the ancient forest fauna.**
 Key words: ecology; zoology; invertebrates; woodland; raised bog.
 Scientific Journal.

O'Connell,C., Foss,P.J. 1987 New records for *Calliergon stramineum* (BRID.) KINB and *Sphagnum squarrosum* CROME on Clara Bog, Co. Offaly. *Irish Naturists' Journal* **22**: 363.

Describes the habitat and associated species of these two moss species on a mat of quaking vegetation near to Lough Roe. These are new records for Co. Offaly.

Key words: ecology; botany; vascular; non-vascular; raised bog.

Offaly County Library Service.

Scientific Journal.

O'Connell, M. 1980 Pollen analysis of fen peat from a Mesolithic site at Lough Boora, County Offaly, Ireland. *Journal of Life Sciences, Royal Dublin Society* **2**, 45-49.

Results from two cores in the vicinity of the occupation site indicate a *Pinus-Ulmus-Quercus* (with *Betula*) Boreal assemblage with dates of 8115 BP and 8070 BP, post-dating the evidence of occupation (c 8,350 BP and earlier). The spores of the fern *Thelypteris palustris*, usually not differentiated from other fern spores, were exceptionally abundant.

Key words: ecology; geology; Quaternary; Holocene; paleo-botany.

Offaly County Library Services

Journal

O'Corry-Crowe,G., Eves,J., Hayden,T.J. 1993 Sett distribution, territory size and population density of badgers (*Meles meles* L.) in Offaly. In: Hayden,T.J. (ed.) *The Badger*. 35-56. Royal Irish Academy, Dublin.

The study location was 16 km² just south of Geasehill. Detailed data on the badger population in this area are presented. The area was part of a Department of Agriculture test site for badger control (for the eradication of TB in cattle) and the population effects of badger removal was monitored.

Key words: ecology; zoology; mammals; habitat.

Book.

Offaly County Council 2005. *Biodiversity Action Strategy for Offaly*. Offaly County Council.

'The Tullamore Declaration 2005'. Sets out a strategy for developing, and acting on, a Biodiversity Plan for the county. The plan will reflect a dual approach: data assembly/research; and public awareness and access to information. Commits to an Advisory Panel and introduces three new concepts: EcoNet ; WildWorldWeb; and Econode.

Key words: ecology.

Offaly County Library Services.

O'Hanrahan,B. 1987 *A survey of invertebrate ecology at Fin Lough*. Unpublished report to the Clonmacnoise Heritage Zone Group.

Results are included in Tubridy, 1988.

Key words: ecology; zoology; fen.

- O'Rourke, T. & A. 2000 *Submission to Offaly County Council Development Plan*.
Privately printed.
Contains papers, correspondence, articles etc referring to the ecological importance of Charleville Wood, Tullamore and neighbouring Blackwood and Brookfield Wood.
Key words: ecology; botany; vascular; non-vascular; woodlands.
Unpublished report.
- Parkes, H.M., Mitchell, F.J.G. 2000 Vegetation history at Clonmacnoise, Co. Offaly. *Biology & Environment. Proceedings of the Royal Irish Academy* **100B**:35-40.
The vegetation profile, based on pollen analysis, from a 5m core of peat at Mongan Bog is discussed. Woodland cover was maintained longer than in other areas, not because of isolation, but because of poor soil conditions.
Key words: ecology; botany; vascular; raised bog; geology; Quaternary; Holocene.
Scientific Journal.
- Phillips, R.A. 1912 *Leucojum aestivum* in North Tipperary and King's County. *Irish Naturalist*. **XXI**: 244
Summer snowflake in low lying pasture on each side of the river Little Brosna at Riverstown, Birr. Questions its native status.
Key words: ecology; botany; vascular; seasonally flooded wet grassland
Scientific Journal.
- Praeger, R.L. 1894 The Seagull Bog, Tullamore. *Irish Naturalist*. **III**: 173.
Describes an excursion to Killeenmore Bog (from Geasehill railway station). "hundred upon hundreds" of gulls (black-headed gulls) rose from the centre of the bog. The eutrophication effect of the guano on the normal raised bog vegetation is noted (see also Dublin N.F.C excursion, Anon 1895).
Key words: ecology; zoology; breeding birds; raised bog.
Scientific Journal.
- Praeger, R.L. 1897 Irish plants collected chiefly in . . . Leinster in 1896. *Irish Naturalist*. **VI**: 89.
Lists 22 plant species found while botanising in Co. Offaly on this trip. Locations include: Clonad Wood; Edenderry; Phillip's Town (Dangean); Grand Canal; and Geasehill.
Key words: ecology; botany; vascular.
Scientific Journal.
- Praeger, R.L. 1899 A botanist in the Central Plain. *Irish Naturalist* **8**:87-103.
On this trip Praeger botanised in the following Co. Offaly locations: Killeen River valley and the summit of Arderin, Slieve Bloom; and from Banagher to Lough Coura (part quoted in Heery, 1993).
Key words: ecology; botany; vascular.
Scientific Journal.

- Praeger, R.L. 1904 *Lactuca muralis* in King's County. *Irish Naturalist*. **XIII**: 260.
This non-native Wall Lettuce *Mycelis muralis* was found "on a wall, growing locally but plentifully near Leap Castle".
 Key words: ecology; botany; vascular; built and artificial surfaces.
 Scientific Journal.
- Preece, R.C., Robinson, J.E. 1982 Molluscan and ostracod faunas from postglacial tufaceous deposits in County Offaly. *Proceedings of the Royal Irish Academy*, **82B**, 7, 115-131
The fossil fauna of the tufa deposits, (radiocarbon dated c3,170BP), at Millpark and Gloster, contained rich assemblages of both terrestrial and freshwater species, giving a rare insight into the terrestrial molluscs of the middle Postglacial period. Millpark tufa was laid down in a slow-moving well vegetated stream; Gloster was deposited as a thin film of water trickling across damp ground.
 Key words: geology; Quaternary; fossils
 Scientific Journal
- Preston, C.D., Pearman, D.A., Dines, T.D. 2002 *New Atlas of the British and Irish Flora*. Oxford University Press. 910pp.
Distribution maps by 10km squares of all native and introduced vascular plant species, up-dating the original 1962 Atlas. Records for Co. Offaly are easily accessed on a CD included with the book.
 Key words: ecology; botany; vascular.
 Book.
- Raven, C.E. 1947 Early English naturalists from Neckham to Ray. (no publisher cited).
Reference to *Pyrola minor* Common wintergreen at Roscrea on page 302.
 Key words: ecology; botany; vascular.
- Regan, E., Anderson, R. in press Terrestrial Coleoptera recorded in Ireland May, 2003.
1,500 terrestrial Coleoptera (beetles) recorded during the Irish Beetle Meeting. Co. Offaly records were from: All Saint's Bog; Lough Boora Parklands; Shannon Callows at Bullock Island, Portland Park and Meelick; and Charleville Wood. Among the species of note were: *Stenus palustris* at Meelick; and *Grammoptera ustulata* at Charleville Wood, the latter being an ancient wood indicator in Britain.
 Key words: ecology; zoology; invertebrates; raised bog; seasonally flooded wet grasslands; industrial cut-away peatlands; wetlands; woodlands.
 Offaly County Library Service.
- Reynolds, J.D. 1984a Invertebrates of Irish midlands raised bogs. Part 2. *Bulletin of the Irish Biogeographical Society* **8**: 98 – 102.
See Reynolds, 1984.
 Key words: ecology; zoology.
 Scientific Journal.

- Reynolds, J.D. 1984b Survey of invertebrate fauna of Irish Midlands raised bogs
Bulletin of the British Ecological Society. Vol XV (2): 81-2.
Funded by the BES ‘small ecological projects grant’, the study aimed to make the first comprehensive collection of invertebrates on Irish raised bogs at a time when the habitat was in danger of vanishing. At publication over 250 species had been provisionally described with many more stored for further study. In Offaly, bogs at Daingan, Clara and Mongan were sampled, the latter receiving the most visits. Also Mouds and Carbury, in Kildare (see also Good, 1985).
Key words: ecology; zoology.
Scientific Journal.
- Reynolds, J.D. 1985 The invertebrates of Lough Roe, Co. Offaly: a rare and endangered bogland habitat. *Bulletin of the Irish Biogeographical Society*. **9**: 41-45.
Key words: ecology; zoology; raised bog soak.
Scientific Journal.
- Reynolds, J.D. 1994 *Crangonyx pseudogracilis* Bonsfield in the Grand Canal. *Irish Naturalists’ Journal* **24** (8), 342-343.
A North American amphipod.
Key words: ecology; zoology; invertebrates.
Scientific Journal.
- Rochford, J.M. 1988. *Breeding bird communities of the Clonmacnoise Heritage Zone, 1987*. Unpublished report to the Clonmacnoise Heritage Zone study, 57 pp.
Results included in Tubridy, 1988.
Key words: zoology.
- Rowlands, R.G., Feehan, J. 2000 The ecological future of industrially milled peatlands in Ireland. *Aspects of Applied Biology*, **58**: 263-270.
Key words: ecology; botany; industrial cut-away peatlands.
Scientific Journal.
- Rowlands, R.G. 2001 *The ecological restoration through natural regeneration of industrial cutaway peatlands in Ireland*. Ph.D. – thesis, University College Dublin.
Key words: ecology; botany; vascular; non-vascular; cutover bog.
Scientific Journal.
- Russel, C.D. 1896 *Lathraea squamaria* in King’s Co. *Irish Naturalist*. **V**: 167.
Toothwort, a parasitic plant species, was “found growing freely in this county” e.g. on a lawn at Geasehill Rectory under beech trees. Also on beech roots at Clonad Wood.
Key words: ecology; botany; vascular; woodland.
Scientific Journal.

- Simpson, N.D. 1960 *A bibliographical index of the British Flora*. Privately printed.
Fifteen references for Co. Offaly (cited elsewhere in this bibliography).
 Key words: ecology; bibliography.
 Offaly County Library Service.
- Schouten, M.G.C. (ed) 2002 *Conservation and Restoration of Raised Bogs – geological, hydrological and ecological studies*. Duchas – The Heritage Service of the Department of the Environment and Local Government, Ireland; Staatsbosbeheer, The Netherlands; and The Geological Survey of Ireland.
 220 pp
A very detailed synthesis of over 63 scientific reports, theses and papers produced from the bilateral Dutch and Irish research programme centred on Clara bog and Raheenmore bog, Co. Offaly, including a comprehensive reference list and some data on other Offaly bogs: All Saints; Mongan; and Sharavogue.
 Key words: ecology; geology; bedrock; Quaternary; Pleistocene; hydrology and hydrochemistry; botany; vascular; non-vascular.
 Book.
- Sheehy-Skeffington, M. 1987 *Clonmacnoise esker grasslands* Unpublished report to the Clonmacnoise Heritage Zone Study.
Results included in Tubridy, 1988.
 Key words: ecology; botany; vascular; non-vascular.
- Smith, G. 2000 *A Preliminary Ecological Survey of Black Wood, Tullamore, Co. Offaly*. Department of Botany, Trinity College, Dublin.
See also O'Rourke, T. and A., 2000.
 Key words: ecology; vascular; non-vascular; woodlands.
 Unpublished report
- Smith, G. 2001 *A Preliminary Ecological Survey of Woodland at Brookfield, Tullamore, Co. Offaly*. Department of Botany, Trinity College, Dublin.
See also O'Rourke, T. and A., 2000.
 Key words: ecology; vascular; non-vascular; woodlands.
- Smith, G. 2014 *Annaghmore Lough Fen pNHA – Ecological Study Report* by Blackthorn Ecology to Killurin, Annaghmore & Gurteen Wind Turbine Concern Group.
A habitat study of a former 121 ha lake and surroundings on the Offaly/Laois border. It is now a complex showing an unbroken transition from lake (0.90 ha) to degraded raised bog, including bog woodland. Most of the former lake is now occupied by Annex I alkaline fen. Fifty bryophytes are listed. Former surveys are reviewed. The site is of national importance with significant potential for education and research.
 Key words: ecology, botany, bryophytes
 Offaly County Library Services
 Unpublished report.

- Speight, M.C.D. 1990 *Hippodamia 13 -punctata* (Coleoptera: Coccinellidae) and other insects from All Saint's Bog, Co. Offaly, Ireland. *Bulletin of the Irish Biogeographical Society*. 13(2), 200-212.
The 13-spot ladybird “swept in some numbers from *Molinia* ... on the edge of bog woodland...” in 1988. Another rare species in the very unusual invertebrate assemblage at this site which may represent a “relict Irish biotope” and “a more complete fauna than any other equivalent site in Ireland” (see also O'Connor and Speight, 1987).
 Key words: ecology; zoology; invertebrates; raised bog.
 Scientific Journal.
- Townsend, T. 1811 A Report on the Bogs to the west of District No. 6 situated in Westmeath and King's County. *2nd Report of the Commissioners appointed to enquire into the nature and extent of several bogs in Ireland and the possibility of draining them.*
 Key words: ecology; raised bogs.
- Trodd, V. (1980) *Birds of the Brosnaland*. Co. Offaly Vocational Committee, Tullamore.
A guide to birdwatching and birds on the Little Brosna callows, with the author's drawings. Over half the callows (i.e. south of the river) are in Co. Offaly.
 Key words: ecology; zoology; birds; seasonally-flooded grasslands.
 Book.
- Trodd, V. (ed) *Scéal na Móna*. Bord na Móna, Newbridge.
Notes and articles re natural heritage in Co. Offaly in many editions. For instance: peregrines at Shannonbridge; plant fossils in the Slieve Bloom; butterflies at Turraun and many more.
 Key words: ecology; geology, botany; zoology; peatlands.
 Periodical (Bord na Móna, Newbridge).
- Tubridy, M. 1987 *The Heritage of Clonmacnoise*. Environmental Sciences Unit, Trinity College Dublin and Co. Offaly VEC.
A non-scientific account of cultural and ecological heritage based on the detailed work reported in Tubridy, 1988.
 Key words: ecology; botany; zoology; birds; invertebrates; eskers; seasonally-flooded wet grassland; raised bog; fen; pre-history; history; farming; social; tourism.
 Book.
- Tubridy, M. 1988 *Clonmacnoise Heritage Zone: a portfolio of management plans*. Final Report to E.C. project no. 6611/85/08/1 by Environmental Sciences Unit, Trinity College Dublin.
A detailed synthesis of research based on (among other sources) unpublished specialist reports commissioned for the project. Reports include: hedges; vegetation of the callows, esker grasslands, Fin Lough and Mongan Bog; invertebrates of Fin Lough; stratigraphy of the callows

and Fin Lough; beetles and breeding birds of the whole site. Some of the unpublished titles appear in this bibliography.

Key words: ecology; botany; vascular; non-vascular; zoology; birds; invertebrates; eskers; seasonally-flooded wet grassland; raised bog; fen; farming; social; tourism; geology; Holocene.

Unpublished report.

Tubridy, M., Meehan, R. 2006 *County Offaly Esker Survey 2006*. Unpublished report by Mary Tubridy and Associates for Offaly County Council.

The esker complex from Durrow to Clonmacnoise ('Eske Riada' complex) in the north of the county is described in 40 'segments' (distinct geomorphic stretches). Habitat maps are produced; and 'geodiversity' discussed. Management issues for sustainable development of eskers are discussed in detail. Suitability of the complex for a UNESCO geopark is suggested.

Key words: geology; Quaternary; ecology; botany; vascular.

Offaly County Library Services.

Van der Molen, P.C. 1988 Palaeoecological reconstruction of the regional and local vegetation history of Woodfield Bog, Co. Offaly. *Proceedings of the Royal Irish Academy* **67**:75-113.

Key words: ecology; geology; Holocene; palaeo-ecology.

Scientific Journal.

Van der Sleeson, S., A. Poole 2002 *Inventory of semi-natural woodlands in the eastern part of Co. Offaly – A pilot study for the national inventory of native woodlands*. Unpublished report to Duchas, The Heritage Service, Dublin

An extremely detailed ecological survey of 82 woodlands of more than 1 ha east of a line from Clara to Blueball, and including Charleville Woods. Data and discussion on all aspects of the woodlands are given, including comprehensive species lists and multi-variate analysis (see also Higgins et al, 2004 for western Offaly)

Key words: ecology; botany; vascular; non-vascular.

Offaly County Library Service.

Van Helsdingen, P.J. 1996a The spider fauna of some Irish floodplains. *Irish Naturalists' Journal* **25**: 285-293.

Gives an account of 63 species caught in pitfall traps on the River Shannon floodplain (Callows) at Clonmacnoise and Little Brosna. 33 species were new to the county and one was new to Ireland. Plant communities and previous Irish records are also given.

Key words: ecology; zoology; invertebrates; seasonally flooded wet grassland.

Scientific Journal.

Van Helsdingen, P.J. 1996b The county distribution of Irish spiders. *Irish Naturalists' Journal* Special Zoological Supplement.

This is a checklist of 378 "presently recorded indigenous Irish spider species", plus references. Many are Co. Offaly records.

Key words: zoology; invertebrates.

Scientific Journal.

- Walker,D., Walker P.M., 1961 Stratigraphic evidence of regeneration in some Irish bogs. *Journal of Ecology* **49**: 169-185.
Descriptions of cores taken from Clara bog were included in this classic paper.
 Key words: ecology; geology; Holocene.
 Scientific Journal.
- Walsh,L. 1978 *Richard Heaton of Ballyskenagh 1601–1666*. Parmore Press, Roscrea.
Mentions Heaton’s botanical records published in *Phytologia Britannica* (1650), including the Offaly records: *Drosera anglica* and *Rubus saxatilis* near Edenderry; and ‘*Pyrola vulgaris*’ in a Bogge by Roscre in the King’s County”.
 Key words: ecology; botany; vascular.
 Offaly County Library Service.
- Walsh,L. 1998 Richard Heaton and *Pyrola media* Sw. in North Tipperary. *Irish Naturalists’ Journal*. **26**: 51- .
Discusses Curtis *et.al.*’s (1993) record of *Pyrola media* Intermediate wintergreen in relation to its possible county location.
 Key words: ecology; botany; vascular.
 Scientific Journal.
- Webb,D.A. 1944 *Senecio viscosus* in Co. Offaly. *Irish Naturalists’ Journal*. **VIII**: 185.
Sticky grousel, abundant in a gravel pit at W end of and E-W esker ridge two and a half miles south of Edenderry, where it meets the road to Portarlinton. First County records for *Galeopsis angustifolia* red hemp-nettle and *Agrimonia odorata* (*A.eupatoria*) fragrant agrimony were also found.
 Key words: ecology; botany; vascular.
 County Library Service
 Scientific Journal.
- Webb,D., 1958 *Neotinea intacta* in Offaly. *Irish Naturalists’ Journal*. **XII**: 332 – 333.
Dense-flowered orchid, in profusion (about a hundred plants) on esker three miles east of Clonmacnoise (also two miles south of Clonmacnoise, though fewer numbers). Also a spectacular display of *Orchis morio* green winged orchid.
 Key words: ecology; botany; vascular.
 County Library Service
 Scientific Journal.

Geology

- Aalbersberg, G. 1994 *The Little Brosna River Valley – Quaternary geology and palaeo-ecology*. Master's thesis, Free University of Amsterdam.
Much of the information on sediment datings and paleo-ecology used in Hooijer (1996) was derived from this study.
 Key words: geology.
- Barry, T.A., Carey, M.L., Hammond, R.F. 1973 A Survey of Cut-over Peats and Underlying Mineral Soils, Bord na Móna, Cnoc Dioluin group. *Soil Survey Bulletin, No.30*. Joint publication by Bord na Móna/An Foras Talúntais.
- Bradshaw, R. 1987 *Account of stratigraphy in cores taken from the callows and Fin Lough*. Unpublished report to the Clonmacnoise Heritage Zone Group.
Data included in Tubridy, 1988.
 Key words: geology; Quaternary; Pleistocene; Holocene.
- Beese, A.P., Bruck, P.M., Feehan, J., Murphy, T. 1983 A silica deposit of possible Tertiary age in the Carboniferous Limestone, near Birr, County. Offaly, Ireland. *Geological Magazine*. **120**: 331-40.
Describes, in detail, the extent, petrology and origin of a silica-rich deposit – pipeclay at Pipemaker's Gorse, Ballygaddy. "...silicified and 'reworked' Carboniferous limestone was preserved by subsidence into a pocket during the Tertiary or younger time".
 Key words: geology; bedrock.
 Scientific Journal.
- Bruck, P.M. 1985 *The geology of the country between Slieve Aughty, the Silvermines-Devil's bit Mountains and Slieve Bloom, Central Ireland*. Department of Geology, University College, Cork. Occasional Report Series RS 85/12.
 Key words: geology; bedrock.
- Connolly, A. 1992 *A report on the palaeo-ecology of Lough Roe, Clara bog, Co. Offaly*. School of Botany, Trinity College, Dublin.
 Key words: geology; Quaternary; Holocene.
- Critchley, M.F. and Schwartz, S.P. 2011 *Blundell Mine, Edenderry – Report on Investigation of Old Mine Workings*. Offaly County Council.
An investigation of a mid-18th to mid-19th century lead-silver mine shaft in Co. Offaly with a review of the local Carboniferous Limestone stratigraphy, mining history and previous investigations. Mineralisation occurred in a breccia (shattered rock), possibly the result of hydraulic fracturing near the Carboniferous sea floor by mineral fluids originating deep within the continental crust. 19pp.
 Key words: geology; bedrock.
 Offaly County Library Services.

- Daly,D., Cronin,C.,Coxon,C., Burns,S.J. 1998 *Co.Offaly Groundwater Protection Scheme Main Report*. Geological Survey of Ireland. 58pp.
Key words: hydrology.
- Dunne,L., Feehan,J. 2003 *Ireland's Mushroom Stones – Relics of a Vanished Landscape* Environmental Resource Management, University College Dublin.
Mushroom stones, or ‘wave-stones’ are isolated boulders of Carboniferous Limestone undercut by wave erosion and chemical corrosion, usually close to the shore-line of vanished post-glacial lakes. 63 are described; 23 are in Co. Offaly, mostly in the west of the county but also in the south and east. Respect is urged for these fascinating relics of pre-history.
Key words: geology; Quaternary; Holocene.
Offaly County Library Services
Book
- Farrington,A., Synge,F.M. 1970 Three local studies of the Irish Pleistocene. 1. The Eskers of the Tullamore district. In: (eds) N.Stephens and R.E.Glasscock. *Irish Geographical Studies*. Department of Geography, Queens University, Belfast.
Describes the eskers of Kilcormac, Ballyduff and Geasehill. Associated with these are end moraines (at right angles to them) and a ‘gravel spread’ at Screggan. All indicate a retreat of ice towards the west and south-west. The eskers are “here narrow-crested and sinuous, there plateau-topped and pitted with kettle-holes.
Key words: geology; Quaternary.
Scientific Journal.
- Feehan,J. 1977 *The Lower Palaeozoic and Old Red Sandstone rocks of north-western Slieve Bloom, County Offaly*. MSc thesis, University Of Dublin.
Key words: geology; bedrock
- Feehan,J. 1979 Plants from the Old Red Sandstone of Slieve Bloom, Co. Offaly, Eire. *Geological Magazine*. Cambridge University Press.
A correspondence describing “several beautifully preserved leaflets, together with numerous indeterminate stem fragments” in Upper Old Red Sandstone near Kinnity, Co. Offaly. Tentatively ascribed to *Aneimites obtusifolius* (Naumann) Ettingshausen, 1895 (see also Scéal na Móna 13: 36 (May 2001).
Key words: geology; bedrock; fossils.
- Feehan,J. 1982a The Silurian rocks of Slieve Bloom Mountains, Counties Laois and Offaly. *Proceedings of the Royal Irish Academy*. **82B**:153-167.
A detailed geological account and map of the 16 inliers of Silurian rocks overlain unconformably by Upper Old Red Sandstone rocks. Concludes that they represent types of a ‘canyon fan’ system.
Key words: geology; bedrock; palaeo-habitats.
Scientific Journal.
- Feehan,J. 1982b The Old Red Sandstone rocks of the Slieve Bloom and northern Devil’s bit Mountains, Counties Laois, Offaly and Tipperary. *Journal of Earth Sciences, Royal Dublin Society*, **5**: 11-30.

The stratigraphy and paleo-environment of a 100-350m sequence of Old Red Sandstone rocks, lying unconformably on Silurian strata. Plant fossils in, both at the base of the succession and towards the top, have enabled the sequence to be dated. Calcified rocks, called caliche, are described.

Key words: geology; bedrock.

Scientific Journal.

Feehan, J. 2013 *The Geology of Laois and Offaly*. Offaly County Council.

A comprehensive and copiously illustrated account of all aspects of the hard and soft geologies with abundant sources and references. The arrangement is in chapters in chronological order of geological periods through to the Ice Ages and post-glacial times. It extends its remit to Geology in our Lives (mining, building etc.) and Geology and Water (groundwater, holy wells etc.). 403pp.

Key words: geology; Quaternary and bedrock.

Offaly County Services.

Book.

Flegg, A. 1978 *Brick clays in Co. Offaly*. Unpublished report. Geological survey of Ireland, Dublin 3pp.

Mentions several 'brickfields' : Lisheen, Ballywilliam, Rahan Demesne, Ballycowan. Most recent production was at Gallen, Ferbane in 1930s. Also mentions the pipeclay at Pipemaker's Gorse (see Beese *et.al.*, 1983).

Key words: geology; bedrock.

Offaly County Library Service.

Flynn, R. 1993 *The hydrology of Clara bog and the surrounding areas*. Unpublished Report, Geological Survey of Ireland. 163pp.

Key words: raised bog.

Gill, M., Johnston, P. 1999 *Raheenmore Bog Subsidence Study 1948-1994*.

Unpublished report, Department of Civil and Environmental Engineering, Trinity College, Dublin.

Quoted in Schouten, 2002.

Key words: geology; raised bogs.

Hammond, R.F. 1968 *Studies into the peat stratigraphy and underlying mineral "soils" of a raised bog in Ireland*. MSc thesis, Trinity College Dublin.

Referred to in Chapter 2 of Schouten, 2002.

Key words: geology; Quaternary; Pleistocene; Holocene.

Hammond, R.F., Warren, W.P., Daly, D. 1987 *Field Guide no.10; Offaly and west Kildare*. Irish Association for Quaternary Studies.

Key words: geology.

- Haigh, W.D. 1914 The Carboniferous volcanoes of Phillipstown, King's County. *Proceedings of the Royal Irish Academy*. **22B**: 17-33.
Describes the occurrence and rocks of a volcanic plug and associated extrusions of green pumice and breccia and (quarried) intrusions at Croghan Hill, near Daingan, Co. Offaly. The author suggests a small volcanic island in the Carboniferous Sea.
 Key words: geology; bedrock; palaeo-habitat.
 Scientific Journal.
- Hitzman, M.W. 1992 *Bedrock Geological Map of Central Ireland*. Geological Survey of Ireland.
 Key words: geology; bedrock.
- Howes, M.J. 1990 *Mineral Resources of County Offaly*. Geological Survey of Ireland.
 Key words: geology; bedrock.
- Jackson, J.S. 1967 The Clonfinlough Stone: a geological assessment. In: (ed) E. Rynne, *North Munster Studies*. The Thomond Archaeological Society, Limerick.
A detailed speculation that many of the sculpturings and inscribings on this erratic limestone boulder with argillaceous (muddy) layers are natural rock-markings (chemical solution pits and along the joints) which have been artificially deepened and added to, in order to represent human figures and other patterns.
 Key words: geology; bedrock; archaeology.
 Book.
- Keegan, J.B., Feehan, J. 1981 Palynofloras from Tournaisian lacustrine and tidal sequences in Slieve Bloom, Counties Laois and Offaly. *Geological Journal*. **16**: 271-285.
 Key words: geology; bedrock; fossils; palaeo-ecology.
 Scientific Journal.
- Loughlin, W.E. 1975 Graptolites of Lower Wenlock age from the Slieve Bloom inliers, Kinnitty, Co. Offaly. *Irish Naturalists' Journal*. **18**: 282-283.
Records the first graptolite fossils *Monograptus priodon* (Bronn), *Monoclimacis vomerina* (Nicholson) and *Pristiograptus meneghina* (Gortani) from three locations in the Slieve Bloom in 1974 ("sparsely preserved in fine sandstone...").
 Key words: geology; bedrock; palaeontology.
 Scientific Journal.
- Mitchell, F.J.G., Delaney, C. 1997 The Quaternary of the Irish Midlands. *Irish Association for Quaternary Studies*, Field Guide 24. Dublin. 84pp
Written to complement a two-day field trip and follows on from original account by Hammond *et. al.* 1957. Field sites in Co. Offaly were Clara esker and Clara bog. The esker is a broad, elevated feature with undulating topography and numerous kettle-holes. Descriptions of sediments from nine bore-holes on the esker are presented.
 Key words: geology; Quaternary; Pleistocene; raised bog.

Book.

- O'Kelly, J. 1866 *Explanations to accompany sheets 117 and 118 of the maps of the Geological Survey of Ireland, illustrating a portion of King's and Queen's Counties and the Counties of Galway and Tipperary. Memoirs of the Geological Survey of Ireland.*
Key words: geology; bedrock.
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