



APPENDIX 6-6

*ECOLOGY PROJECT TEAM
CVs*

CURRICULUM VITAE



Sarah Mullen

Sarah is a Project Director (Ecology) with MKO with over 10 years' post graduate experience in ecology. Sarah holds a B.Sc. (Hons) in Botany, an M.Sc. in Biodiversity and Conservation and a Ph.D. in Botany. Prior to taking up her position with MKO in September 2018, Sarah worked as an Ecologist with Ryan Hanley Ltd. where she gained experience in multidisciplinary ecological surveys, ecological impact assessment and appropriate assessment. Since joining MKO Sarah has been responsible for the management, co-ordination and undertaking of flora, fauna and habitat surveys for a range of projects including large-scale energy infrastructure projects, residential and commercial developments, tourism projects and biodiversity monitoring and restoration projects. She has overseen the preparation of ecological reports to accompany planning applications including Ecological Impact Assessments, Stage 1 and Stage 2 Appropriate Assessment reports, Invasive Species Management Plans and Biodiversity/Habitat Management Plans. Sarah's key strengths and areas of expertise are in terrestrial flora and fauna ecology, including vegetation surveys, habitat mapping, invasive species surveys, mammal surveys, Appropriate Assessment and Ecological Impact Assessment. She holds membership with the Chartered Institute of Ecology and Environmental Management.

Current Role	Project Director (Ecology)
Qualifications	➤ Ph.D. Botany, Trinity College Dublin (2013). ➤ M.Sc. Biodiversity and Conservation, University of Leeds (2008). ➤ B.Sc. Botany (Hons), University College Dublin (2005).
Memberships	➤ Chartered Institute of Ecology and Environmental Management. ➤ Botanical Society of Britain and Ireland (BSBI) ➤ Bat Conservation Ireland
Relevant Experience	➤ Project Director MKO (March 2023 – present) ○ Management of the Ecology team including: ▪ Managing team capacity and deadlines. ▪ Overseeing and assisting the team in managing the survey and reporting requirements for a range of development types including renewable infrastructure developments, residential developments, tourism. ▪ Input into as well as review and sign-off on ecology reporting outputs from the team. ▪ Training and mentoring of the team in impact assessment and field surveying. ➤ Ecologist MKO (Senior Ecologist September 2022 – March 2023, Project Ecologist April 2021 – September 2022, Ecologist September 2018 – April 2021). ○ Responsible for overseeing the preparation of Biodiversity Chapters for EIARs, Ecological Impact Assessments (EcIA) and Appropriate Assessment (AA) reports for a range of projects including: ▪ Ballivor Wind Farm, Co. Meath and Westmeath, 2019-2024 – Lead ecologist responsible for the co-ordination and leading of ecology field surveys, advising the client on ecological constraints, preparation of the AASR, NIS and the Biodiversity chapter of the EIAR and preparation of Biodiversity Management Plan for the site.

- **Clonbern Wind Farm**, Galway, 2019-2024 - Co-ordination of ecology field surveys and overseeing the preparation of AASR, NIS and the Biodiversity chapter of the EIAR, advising on the preparation of Biodiversity Management Plan.
- **Dunneill Wind Farm Extension of Operation**, Sligo, 2021-2022 – Oversaw the preparation of the NIS and EIAR Biodiversity Chapter for the planning application.
- **Glenora Wind Farm**, Mayo, 2021-2023 – Undertook ecological surveys of the windfarm site to inform the NIS and EIAR.
- **Yew Point Eco-tourism Development**, Athlone, Co. Westmeath 2022-2023 – Co-ordination of and undertaking of detailed habitat, flora and fauna surveys, preparation of AASR, NIS and EcIA.
- **Trinity Hall Student Accommodation**, Dublin, 2019-2021 – Coordination of field surveys and preparation of EcIA, AASR and NIS.
- **Kilcullen Strategic Housing Development**, Kildare, 2020-2022 – Undertaking of field surveys and preparation of AASR, EcIA and Biodiversity Enhancement Plan.
- **Rosshill Strategic Housing Development**, Galway (2019-2021) – Biodiversity Chapter, AASR and NIS.
- **NUIG Student Accommodation 2018-2024** – Involved in undertaking habitat surveys, preparation of the AASR, NIS, EcIA and Biodiversity Management Plan for the planning application. Responsible for ensuring implementation of the Biodiversity Management Plan and for management of site supervision works.

- Ecologist, Ryan Hanley Ltd (April 2014 – February 2017)
- Intern, Global Biodiversity Information Facility, Museum fur Naturkunde, Berlin, Germany (July 2013 – October 2013)
- Ph.D. Researcher Botany, Trinity College Dublin (2009 – 2013)

Key Strengths & Areas of Expertise

Ecological Assessment and Appropriate Assessment

- Extensive experience carrying out Ecological Impact Assessment reports, Appropriate Assessment Screening reports, Natura Impact Statements and Biodiversity chapters for Environmental Impact Assessment Reports for a variety of construction projects, water services, drainage schemes and energy infrastructure projects.

Vegetation and habitat surveys

- Experience undertaking detailed vegetation and habitat surveys, including Annex I habitat condition assessments in grassland, peatland and woodland habitats. Experienced in habitat identification in line with Fossitt (2000) as well as in using the Irish Vegetation Classification (IVC) system.

Invasive Species Surveys

- Scoping and overseeing invasive species surveys and preparation of Invasive Species Management Plans.

Mammal Surveys



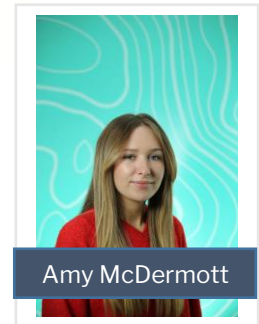
	- Experienced in undertaking terrestrial mammal surveys, including otter and badger, for ecological assessment surveys and pre-commencement surveys for windfarm and construction projects. Invertebrate surveys - Extensive experience undertaking plant-pollinator interaction surveys in semi-natural grasslands as part of PhD research. This included detailed bee, hoverfly and butterfly surveys. - Experience in undertaking marsh fritillary larval web surveys.
Publications	- Herbertsson L, Ekroos J, Albrecht M, Bartomeus I, Batáry P, Bommarco R, Caplat P, Diekötter T, Eikestam JM, Entling MH, Farbu S, Farwig N, Gonzalez-Varo JP, Hass AL, Holzschuh A, Hopfenmüller S, Jakobsson A, Jauker B, Kovács-Hostyánszki A, Kleve W, Kunin WE, Lindström SA.M, Mullen S, Öckinger E, Petanidou T, Potts SG, Power EF, Rundlof M, Seibel K, Söber V, Söderman A, Steffan-Dewenter I, Stout JC, Teder T, Tscharnkte T, Smith HG (2021) Bees increase seed set of wild plants while the proportion of arable land has a variable effect on pollination in European agricultural landscapes. <i>Plant Ecology and Evolution</i> 154(3): 341-350. https://doi.org/10.5091/plecevo.2021.1884 - Russo, L., Fitzpatrick, Ú., Larkin, M., Mullen, S., Power, E., Stanley, D., White, C., O'Rourke, A., & Stout, J. C. (2022). Conserving diversity in Irish plant-pollinator networks. <i>Ecology and Evolution</i>, 12, e9347. https://doi.org/10.1002/ece3.9347 - J.C. Stout, E.F. Power, D.A. Stanley and S.E. Mullen (2021) Pollinators and pollination networks in Irish farmland: implications for conservation of pollination services. Conference paper: Teagasc Biodiversity Conference: Conserving Farmland Biodiversity
Interpersonal & Communication	- Manage and advise a large team of ecologists at different stages in their careers. - Experienced working as part of a multi-disciplinary team on a variety of projects, communicating ecological survey requirements and constraints to clients. - Experience in consultation with statutory ecological consultees and other stakeholders including NPWS, Inland Fisheries Ireland, Biodiversity Officers for local authorities regarding sensitive ecological sites. - Experience liaising with landowners during my PhD research and communicating the nature of my work. - Completed LEAP Emerging Leaders Programme 2021-2022
Licenses Held	- Full clean driver's license. - Safe Pass - Bat Disturbance Licence (DER/BAT 2025-136)



Katy Beckett

CURRICULUM VITAE

Current role	Project Ecologist
Qualifications, Certificates, Licences	➤ M.Sc. Biodiversity and Conservation (2021-2022), Trinity College Dublin - Thesis on “<i>The effects of wind turbine proximity on vegetation and insect pollinator communities in an Irish agricultural context</i>” with Nature+ research group ➤ B.A. Environmental Science (2017-2021), Trinity College Dublin - Thesis on “<i>Irish invasive plants and their risk of hybridisation with native or other alien plants: a phylogenetic approach</i>”, awarded the ESAI Undergraduate of the Year award ➤ CIEEM Qualifying Member ➤ Member of Botanical Society of Britain and Ireland, BirdWatch Ireland
Years of experience	➤ 3 years
Relevant experience	➤ Multidisciplinary ecological walkover surveys for a range of large-scale projects including wind farms, solar farms and large-scale residential developments. ➤ Strong technical report writing skills with experience in managing and compiling AASRs, NISs, EcIAs, EIAR Biodiversity Chapters, Constraints Studies, Biodiversity Management and Enhancement Plans and Invasive Species Management Plans for a range of project types. ➤ Volunteer garden, countryside and iWeBS bird surveys for Birdwatch, Hen harrier and Red Kite vantage point surveys for the Golden Eagle Trust, Bird ID courses with BTO
Practical skills and aptitudes	➤ Habitat mapping and classification using Fossitt, ERICA, Annex I habitat ID ➤ Detailed botanical and vegetation surveys, Annex I habitat condition assessments for a number of peatland, grassland, woodland and coastal habitats ➤ Detailed mammal surveys e.g. badger, otter, red squirrel, pine marten, camera trapping ➤ Marsh fritillary larval web and habitat condition assessment surveys ➤ Insect surveys e.g. dedicated Odonata surveys, pollinator transects and ID ➤ Bat dusk and dawn emergence and re-entry surveys, night-time bat walkovers, bat habitat appraisals ➤ Breeding and winter bird surveys using visual and aural methods – leading training sessions for the MKO Ecology team on these surveys ➤ Proficient at QGIS and Field Maps
Interpersonal & Communication Skills	➤ Project Manager leading a small team of ecologist on a number of small, medium and large-scale projects ➤ Excellent time management and organisational skills ➤ Effective communication and presentation of reports, graphics, charts, mapping ➤ Liaising with clients, landowners, developers and consultants on inter-disciplinary teams
Licenses held	➤ Full Clean Irish Drivers License, Manual Handling Cert, Remote Emergency First Response Level 1, Coillte ERA 2024, SafePass



Amy McDermott

CURRICULUM VITAE

Current role	Graduate Ecologist
Qualifications	> B.Sc. (Environmental Science) (2025) University of Galway (Hons)
Memberships	> Qualifying Membership of the Chartered Institute of Ecology and Environmental Management (CIEEM)
Years of experience	> <1 year
Relevant experience	> Field surveying > Habitat Classification – Fossitt and ERICA > QGIS > Report writing through final year project thesis > Ecological Surveying on Large scale wind farm projects – vegetation surveys, mammal surveys, round-leaved wintergreen surveys, marsh fritillary surveys, constraints surveys etc. > Dedicated Odonata surveys > IWeBs bird surveying for BirdWatch Ireland
Key strengths and areas of expertise	> Microsoft office programs > Ecological surveys, small mammal surveys, bat surveys, vantage point bird surveys > Habitat mapping and data analysis > Report writing; AASR, NIS, ECIA, ISMP > Mammal Surveying > Marsh Fritillary Surveying
Interpersonal & Communication Skills	> Communication and Management of teams through customer service in a retail setting > Teamwork > Motivated > Confident in research and analysis > Hardworking and attentive > Eager to learn and gain experience
Licenses held	> Full clean driver's license

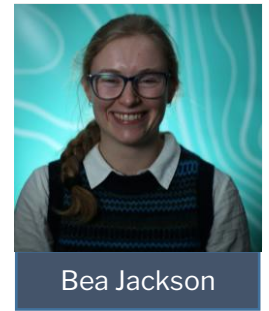


Aoife Jovce

CURRICULUM VITAE

Current Role	Project Director Ecology (Bats)
Qualifications	> MSc Agribioscience (2017), National University of Ireland, Galway. > BSc Environmental Science (2016), National University of Ireland, Galway. > MCIEEM
Years of Experience	> 7 Years' Consultancy Experience
Relevant Experience	Lead Bat Specialist for survey coordination, preparation and submission of bat impact assessment and reports for consented wind energy projects, including: • Seven Hills Wind Farm, Co. Roscommon • Ballivor Wind Farm, Co. Meath • Carrigarierk 2 Wind Farm, Co. Cork • Cleanrath Wind Farm, Co. Cork • Knocknamork Renewable Energy Development, Co. Cork • Derrinlough Wind Farm, Co. Offaly • Glenard Wind Farm, Co. Donegal • Sheskin South Wind Farm, Co. Mayo • Lackareagh Wind Farm, Co. Clare • Ballywater Wind Farm Lifetime Extension, Co. • Castledockrell Wind Farm Lifetime Extension, Co. • Ballyhorgan Wind Farm, Co. Kerry > Bat Ecologist – managing survey requirements for a variety of wind and solar energy planning applications, as well as commercial, residential and infrastructure projects including scope development, roost assessments, acoustic surveying, sonogram analyses, impact assessment and report writing. > Producing comprehensive Appropriate Assessment Screening Reports, Natura Impact Statements and providing essential inputs to Environmental Impact Assessment Reports. > Providing oversight and advice in the form of Ecological Clerk of Works. > Carrying out multi-disciplinary field surveys for a range of habitats and species including Badger, Otter and Marsh Fritillary. > Experienced in wading and boat electro-fishing as well as fish handling and identification. In depth knowledge and experience in in and river barrier identification and measurement.
Key Strengths & Areas of Expertise	> Bat Surveys, Handling, Mitigation and Impact Assessments; Acoustic sampling and sound analysis using Kaleidoscope Pro. > AA Screening, NIS reports and EIAR inputs. > Ecological Clerk of Works. > Invasive Species Management and Habitat surveys (terrestrial and aquatic). > Mammal Surveys (Badger, Otter etc.). > Electro-fishing and River Hydromorphology Assessment Technique (RHAT) surveys. > GIS Mapping (QGIS, ArcGIS, SAGA), and satellite image analysis. > Bat Conservation Ireland member.
Licenses and Certifications	> Roost Disturbance license no. DER-BAT-2026-124, DER-BAT-2025-117, DER-BAT-2024-54, DER-BAT-2023-14, DER/BAT 2022-06, DER/BAT 2021-02 and DER/BAT 2020-1. > Multiple site-specific bat derogation licenses & photography licences (30+). > CIEEM Bat Impacts and Mitigation 2019. > BCI Bat Tree Roost Identification and Endoscope. > IFM Electric Fishing Cert 2022 and HyDrone certificate of training 2025. > Kaleidoscope Pro Online 2020. > NPWS License No. C10/2021. > Safe Pass, Manual Handling Cert, Remote Emergency First Response Level 1, Coillte ERA 2021, Irish Rail – Personal Track Safety 2021 & 2024.





Bea Jackson

CURRICULUM VITAE

Current role	Ecologist Practitioner
Qualifications	➤ MSc Botany Trinity College, Dublin (2021-2023) ➤ BA (Hons) Botany from Trinity College, Dublin (2017-2021)
Memberships	➤ Qualifying Member of the Chartered Institute of Ecology & Environmental Management (CIEEM) ➤ Botanical Society of Britain and Ireland ➤ British and Irish Bryological Society ➤ Birdwatch Ireland
Years of experience	➤ December 2025 – Present, Ecologist Practitioner, MKO ➤ April 2025 – November 2025, Senior Consultant Ecologist, Scott Cawley Ltd. ➤ April 2024 – March 2025, Consultant Ecologist, Scott Cawley Ltd. ➤ October 2023 – March 2024, Graduate Ecologist, Scott Cawley Ltd.
Relevant Experience	➤ Habitat surveying and associated mapping and data management for road developments. ➤ Experience in conducting multidisciplinary and species-specific surveys, including wintering and breeding birds, newts, marsh fritillary, bat and mammal surveys for a range of projects including road developments, solar developments, data centre developments, and large-scale residential developments. ➤ Experience writing Appropriate Assessment Screening Reports, Natura Impact Statements, Ecological Impact Assessments, Biodiversity Chapters for Environmental Impact Assessment Reports, and other ecological reporting including Biodiversity Enhancement and Management Plans and Invasive Species Management Plans.
Key strengths and areas of expertise	➤ Habitat survey, classification and evaluation as per Fossitt (2000) and identifying Annex I habitat types ➤ Contributing to and writing technical reporting including Ecological Impact Assessment, Appropriate Assessment, and Biodiversity Chapters for inclusion in Environmental Impact Assessment Reports for a range of projects including linear infrastructure projects, renewable energy projects, data centre developments and large-scale residential developments. ➤ Volunteer for the Irish Wetland Bird Surveys (iWeBS) for Birdwatch Ireland.
Practical skills and aptitudes	➤ Multidisciplinary surveys covering habitats, protected mammals, invasive species on linear infrastructure projects, renewable energy projects, data centre developments and large-scale residential developments. ➤ Detailed botanical surveys (relevés) surveys of Annex I habitats ➤ Surveys for protected fauna species (birds, bats, otter, badger, newt, marsh fritillary)

Offices in Galway and Dublin

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	> Proficient in the use of QGIS > Working collaboratively with other disciplines (e.g. engineers, hydrologists, hydrogeologists, landscape architects etc).
Interpersonal & Communication Skills	> Excellent time management and communication skills > Experience in managing survey teams and schedules for small-scale projects > Previous experience in managing a small team of seasonal bat ecologists at Scott Cawley Ltd. > Previous experience of delivery of internal training for invasive species identification, plant identification and grassland habitats at Scott Cawley Ltd.
Licenses held	> Full clean Irish Driver's license > Safe Pass



Chandra Walter

CURRICULUM VITAE

Current role	Ecologist
Qualifications	➤ BSc (Hons) Ecology (2015), UCC ➤ MSc Organic Horticulture (2017), UCC
Years of experience	➤ 5 Years; Consultancy Experience
Relevant experience	➤ Multidisciplinary ecological field surveys including botanical, invasive species, aquatic, mammal, marsh fritillary and bat surveys. ➤ Surveys for a range of consented renewable energy projects which include: ○ Cushaling WF, Co. Kildare/Co. Offaly ○ Littleton WF, Co. Tipperary ○ Drehid WF, Co. Kildare ➤ Experience in writing Appropriate Assessment Screenings, Natura Impact Statements, Ecological Impact Assessments, Appendix Reports for Environmental Impact Assessment Reports (EIARs) and Invasive Species Management Plans.
Key strengths and areas of expertise	➤ Survey skills including for bats, non-volant mammals, habitat and invasive species surveys, marsh fritillary surveys. ➤ Invasive Species Management Plans (for terrestrial and aquatic settings) ➤ Strong analytical skills in bat call analysis ➤ Strong technical report writing skills (AASR, NIS, ISMP, EcIA) ➤ Invasive species surveys/ management
Management/ supervision	➤ Supervision of junior staff during site work on a range of survey types ➤ Co-ordination of bat survey schedule and site work at Fehily Timoney and Company
Licenses held	➤ Full clean Irish driving license. ➤ Current Safe Pass holder. ➤ Manual handling course completed. ➤ Bat Derogation License



CURRICULUM VITAE



Ciara Lynn Sheehan

Current role	Graduate Ecologist
Qualifications	➤ B.Sc. (Hons) Ecology and Environmental Biology, University College Cork (2023)
Years of experience	➤ September 2023 – Present with MKO
Relevant experience	➤ Currently a Graduate Ecologist with MKO ➤ Experience in preparation of Appropriate Assessment Screening Reports and Ecological Impact Assessments ➤ Experience in creating maps using QGIS and ArcGIS ➤ Field surveying, habitat identification and invasive species identification experience
Practical skills and aptitudes	➤ Carrying out multidisciplinary walkover surveys and protected species surveys including marsh fritillary ➤ Plant identification ➤ Habitat assessment and identification following Fossitt's 'A Guide to Habitats in Ireland' ➤ Mapping using QGIS and ArcGIS ➤ Confident in report writing and using Microsoft Office (Word, PowerPoint, Excel)
Management/supervision	➤ Kate O' Donnell, Project Ecologist
Interpersonal and communication skills	➤ Flexible and self-motivated ➤ Dependable and works well in teams ➤ Effective communicator from liaising with colleagues and clients in MKO and from working in hospitality previously ➤ Public speaking and presentation skills
Licenses held	➤ Full clean Irish driving license ➤ SOLAS Safe Pass ➤ Manual Handling ➤ Coillte ERA

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Clare Mifsud

CURRICULUM VITAE

Current role	Project Manager - Bat Ecologist
Qualifications	➤ PhD Bat Ecology and Conservation, University of Malta (2015 – 2021) ➤ MSc Bat Ecology and Conservation, University of Malta (2012 – 2013) ➤ BSc (Hons) Biology and Chemistry, University of Malta (2007 – 2011)
Professional Experience	➤ 16 years' experience in bat research and conservation ➤ Experience in ecological consultancy including Environmental Impact Assessment for infrastructure projects ➤ Project Manager and Bat Ecologist responsible for delivery of bat assessments from survey design through to reporting
Wind Farm Experience	➤ Project Manager and lead bat ecologist on multiple onshore wind farm developments in Ireland ➤ Managed full project lifecycle including survey design, programming, fieldwork coordination, data analysis, impact assessment, mitigation design and reporting ➤ Lead author of five wind farm bat reports prepared for EIAR submission within a 12-month period ➤ Designed and implemented survey strategies in line with current best practice and industry guidance ➤ Undertaken static and transect surveys, roost assessments and acoustic analysis to inform impact assessment ➤ Interpreted bat activity data to assess significance of effects and inform design iteration ➤ Developed mitigation strategies including turbine buffers, lighting design and operational mitigation (e.g. curtailment/feathering) ➤ Coordinated multidisciplinary inputs and liaised with clients, design teams and regulatory stakeholders
Key strengths and areas of expertise	➤ Wind farm bat assessment and mitigation design ➤ Ecological Impact Assessment (EIA/EIAR) ➤ Bat survey methodologies and field techniques ➤ Data analysis and interpretation of bat activity ➤ Technical report writing and scientific communication
Interpersonal & Communication Skills	➤ Experience engaging with developers, consultants, regulatory authorities and stakeholders ➤ Clear and concise communication of technical information to specialist and non-specialist audiences
Licenses held	➤ Licensed to capture and handle bats, undertake roost inspections, and carry out bat-related survey and conservation activities ➤ Full driver's licence



Cuan Feely

CURRICULUM VITAE

Current role	➤ Practitioner Ecologist
Qualifications	➤ B.Sc. (Environmental Science) (2024) National University of Ireland, Galway (Hons) ➤ Certificate in Irish Wildflower Identification: ATU Sligo (FETAC Level 6)
Memberships	➤ Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM)
Years of experience	➤ 1.5 years
Relevant experience	➤ Experience in field surveying across a wide variety of ecological survey types ➤ Habitat classification according to Fossitt (2000) ➤ Proficient in QGIS and ArcGIS ➤ Report writing of a variety of ecology reports (EclA, AASR, PEA, NIS, Biodiversity Metric Report and Ecological Briefing Notes) ➤ Experience in carrying out appropriate assessment screenings for a variety of projects of various sizes including wastewater treatment plants, residential developments and rail infrastructure. Assisting in the survey effort for multiple wind farm projects, including: ➤ Cooloo Wind Farm, Co. Galway ➤ Gannow Wind Farm, Co. Galway ➤ Lemanaghan Wind Farm, Co. Offaly
Key strengths and areas of expertise	➤ Proficient at QGIS and Qfield ➤ Habitat mapping and classification using Fossitt guides and ERICA ➤ Botanical and vegetation surveying using relevés, species ID using relevant tools and keys ➤ Otter, badger, and other mammal surveys ➤ Marsh Fritillary surveying of suitable habitat and larval webs ➤ Bat dusk emergence, walked and driven bat transects ➤ Bat habitat appraisal surveys ➤ Breeding and winter bird surveys ➤ Peregrine Falcon surveys and associated reporting ➤ Report writing proficiency – AASR, NIS, EIAR, PEA, Biodiversity Metric Reports and Briefing Notes ➤ Effective presentation of reports, graphics, charts, and maps to convey information
Interpersonal and communication skills	➤ Effective communication with customers as a result of 5 years' experience in retail ➤ Experience working as part of a team of experienced ecologists across a wide variety of projects ➤ Effective communication and liaising with team members, clients, contractors and landowners

Offices in Galway and Dublin

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Licenses held

- > Full clean class B driver's license
- > Manual handling
- > SOLAS Safe Pass

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CURRICULUM VITAE



Caiti Farren

Caiti is a Practitioner Ecologist with MKO and holds a first-class BSc (Hons) in Botany from Trinity College Dublin. Caiti has experience in plant and pollinator identification and botanical field skills. Caiti is a member of the MKO Ecology Team which work on producing high quality Appropriate Assessment Screening Reports and Natura Impact Statements for a variety of clients.

Current Role	➤ Practitioner Ecologist.
Qualifications	➤ BSc Biological and Biomedical Sciences: Botany from Trinity College Dublin (FETAC Level 8). ➤ Certificate in Irish Wildflower Identification: ATU Sligo (FETAC level 6). ➤ Remote Emergency First Response Level 1
Industry Experience	➤ 2.5 years.
Relevant Experience	➤ Plant Identification, Pollinator Identification and Botanical Field Skills. ➤ Trained Ecological Clerk of Works. ➤ Trained in Appropriate Assessment production. ➤ Habitat Identification according to Fossitt (2000). ➤ Knowledge of protected areas under the Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC). ➤ Familiar with handling, reading, and interpreting spatial datasets ➤ Production of high-quality writing.
Key Strengths & Areas of Expertise	➤ Plant and Pollinator surveys, and identification using keys. ➤ Assessment of habitats and species relevant to appropriate assessments. ➤ Proficient in Microsoft office programs (Word, Excel, PowerPoint).
Interpersonal & Communication Skills	➤ Strong communication and presentation experience. ➤ Leadership and managerial skills. ➤ Skilled in concise, informative writing. ➤ Strong ability to work and engage within a team.
Interests & Hobbies	➤ Reading, crafts, conservation volunteering work.
Licenses Held	➤ Full Clean License



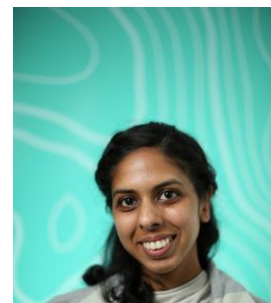
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CURRICULUM VITAE



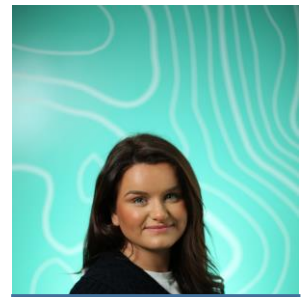
Deepali Mooloo

Current role	Ecologist
Qualifications	➤ MSc. Applied Coastal and Marine Management ➤ BSc. (Hons) Marine Science and Technology
Years of experience	➤ 7 years of experience working in marine and coastal ecology and management ➤ 2.5 years of experience working with MKO in both coastal and terrestrial ecology
Relevant experience	➤ Habitat identification according to Fossitt (2000) and identifying Annex I habitat types ➤ Knowledge of protected areas under the Birds Directive (79/ 409/EEC) and the Habitats Directive (92/43/EEC). ➤ Experience in the preparation of Appropriate Assessment Screening reports, Natura Impact Statements, Biodiversity Chapters, and Ecological Impact Assessments. ➤ Experience with mapping in QGIS and ArcGIS ➤ Experience in field surveys including mammal surveys.
Key strengths and areas of expertise	➤ Botanical surveys of Annex I habitats ➤ Report writing ➤ Winter bird and Breeding bird surveys ➤ Invasive alien plant species surveys ➤ Habitat mapping with ArcGIS and QGIS ➤ Tree ID and Woodland Botany ➤ Grassland and sedges Identification
Practical skills and aptitudes	➤ Botanical assessments for terrestrial, coastal and marine environments ➤ Mammal surveys of protected species
Interpersonal and communication skills	➤ Good communication skills in English, French, both oral and written, with the ability to work well as part of a team. ➤ Experience in leading survey teams for small-scale projects
Licenses held	➤ Full clean Irish driving license ➤ Current safe pass holder ➤ Manual handling course ➤ Coillte ERA ➤ Qualifying member of Chartered Institute of Ecology and Environmental Management

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Ellen Tuck

CURRICULUM VITAE

Current Role	Practitioner Ecologist
Qualifications	- Level 6 FETAC Maths and Science, National University of Ireland, Galway. - BSc Environmental Science (2022), National University of Ireland, Galway.
Years of Experience	1.5 years
Relevant Experience	- Completion of summer internship as a student Ecologist with MKO in Ecology, Ornithology, Environmental, and Landscape. - Currently an Ecologist with MKO since May 2022. - Experience in preparation of Pre-Screening Appropriate Assessment Reports, Natura Impacts Statements, and habitat mapping with QGIS and ArcGIS. - Field surveying, habitat identification and invasive species identification experience.
Practical Skills & Aptitudes	- Skills including bat surveys, protected species surveys including marsh fritillary, otter and badger surveys. - Mapping using QGIS, MapInfo and ArcGIS and MS Office programs. - Invasive alien plant species surveys. - Habitat assessment and identification according to Fossitt 2000 and ERICA - Badger and other Mustelids (Field Studies Council). - Winter woodland identification training - Pearl Mussel Training
Management/ Supervision	- Liaising with clients on various projects. - Liaises on a daily basis with colleagues both one-on-one and in meeting settings. - Effective and clear communicator with over 15 years' experience working as a team member in various other roles.
Interpersonal & Communication Skills	- Liaising with clients and landowners. - Effective and clear communicator. - Team building and mentoring skills.





Planning and
Environmental
Consultants

Licenses Held

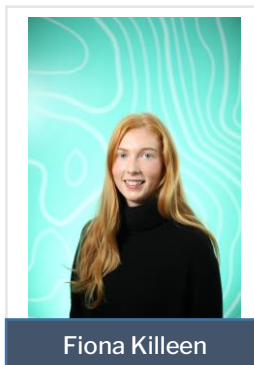
- > Full clean Irish driving license.
- > Safe Pass.
- > First Aid.
- > Coillte ERA 2022.
- > IAA Drone License A1 & A3 operator.



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Fiona Killeen

CURRICULUM VITAE

Current Role	Practitioner Ecologist
Qualifications	B.Sc. Environmental Science, 2nd Class Honours Grade 1, NUIG.
Memberships	- Qualifying membership with Chartered Institute of Ecology and Environmental Management - BirdWatch Ireland - Botanical Society of Britain & Ireland
Years of Experience	2+ year.
Relevant Experience	- Began a Graduate Ecologist role with MKO in September 2022 - present - Experience drafting and submitting a variety of planning reports for submission to a planning authority such as, Appropriate Assessment Screening Reports, Natura Impact Statements, EIAR Biodiversity Chapters, Ecological Impact Assessments, Preliminary Ecological Appraisal, Constraint reports, Briefing Notes, Bird reports, Invasive Species Management Plans, Fee Proposals and ecological inputs to tender documents. - Experience in conducting multidisciplinary walkover surveys in line with standard best practice, while assessing habitats according to Fossitt (92000) and experienced in habitat mapping using QGIS. Experience in conducting specific ecological surveys such as red listed/protected botanical surveys, otter, badger, wintering/breeding bird survey, Annex 1 habitat, breeding merlin, marsh fritillary, internal/external bat roost inspections, bat transects, deploying/collecting bat static detectors and camera trap mammal surveys. - Experience advising clients in person and through online meetings regarding potential additional steps undertaken to help reduce ecological planning risks associated with the Proposed Development. Experience liaising with clients throughout all stages of the ecological planning report process. - Experience advising and completing ecological reports/site surveys for a wide range of Proposed Developments including bog restoration, river restoration, felling forestry, upgrades to waste water treatment plants/water treatment plants, transport, renewable energy developments (wind and solar farms development), residential, hospitality and tourism, social developments, primary, secondary and third level educational developments throughout the country.

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Practical Skills & Aptitudes	> Confident, Logical, Self-motivated. > Confident with botanical, habitat, mammals and bird ID skills > Confident speaking directly and liaising with clients. > Habitat assessment and identification using Fossitt 2000. > Competent in using QGIS and ArcGIS online for creating fieldmaps and for habitat mapping.
Management/ Supervision	> Kate O'Donnell, Project Ecologist > Colin Murphy, Project Ecologist > Sarah Mullen, Project Director (Ecology) > Pat Roberts, Principal Ecologist > John Hynes, Ecological Director
Interpersonal & Communication Skills	> Dependable, positive, team player. > Comfortable using MS Teams and in person (in fast paced environments). > Strong communication, organization and time management skills. > Skills liaising with colleagues, clients, landowners and colleagues on various projects to meet deadlines.
Licenses Held	> Full, clean, Irish drivers' license. > Current Safe Pass holder > Manual handling course > First Aid





Kate O'Donnell

CURRICULUM VITAE

Kate is a Senior Ecologist in MKO with over 6 years' experience in consultancy. Kate holds a BSc. (Hons) in Ecology and Environmental Biology from UCC and a Level 8 Special Purpose Award in Digital Mapping and GIS from GMIT. Kate has extensive experience in multidisciplinary ecological surveys, Stage 1 and Stage 2 Appropriate Assessment and Ecological Impact Assessment reporting. Kate's key strengths are technical report writing, GIS mapping, terrestrial ecology surveys and botany.

Current Role	Senior Ecologist
Qualifications	➤ BSc. (Hons) Ecology and Environmental Biology (2019), UCC. ➤ Level 8 Special Purpose Award in Digital Mapping and GIS (2021), ATU. ➤ Certificate of training in Freshwater Pearl Mussel Surveying (2022). ➤ ILM Certificate – Level 4 Award in Leadership and Management (2024). ➤ Associate Member of CIEEM
Years of Experience	➤ Senior Ecologist at MKO (July 2025 – Present) ➤ Project Ecologist at MKO (July 2022 – July 2025). ➤ Ecologist at MKO (February 2022 – July 2022). ➤ Ecologist at RPS (January 2021 – January 2022). ➤ Graduate Ecologist at RPS (June 2019 – December 2020). ➤ Dalkeith Reserves Project Group volunteer (June – August 2018).
Relevant Experience	➤ Multidisciplinary ecological field surveys for a range of projects including road upgrade and realignment schemes, flood relief schemes, IDA developments, sewerage schemes and wind farms. ➤ Extensive experience writing Appropriate Assessment Screening Reports, Natura Impact Statements, Ecological Impact Assessments, Construction Environmental Management Plans, Constraints Studies and Biodiversity Chapters for Option Selection Reports and Environmental Impact Assessment Reports for large scale infrastructure projects. ➤ Site supervision as an Ecological Clerk of Work. ➤ Large scale habitat mapping for road developments. ➤ Terrestrial mammal surveys for road developments and flood relief schemes.
Practical Skills & Aptitudes	➤ Strong botanical ID skills of both vascular and non-vascular plants ➤ Skilled in identifying habitat types as per Fossitt (2000) and identifying potential Annex I habitat types. ➤ Strong technical report writing skills (AASR, NIS, Biodiversity Chapters, EcIA). ➤ Mapping using QGIS, MapInfo and ArcGIS. ➤ Mammal surveys including otter and badger. ➤ Invasive species survey/ management. ➤ Freshwater Pearl Mussel Surveys
Management/ Supervision	➤ Project Manager leading a team of four ecologists





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Interpersonal & Communication Skills

- > Liaising with clients and landowners.
- > Strong time management skills.
- > Team building and mentoring skills.

Licenses Held

- > Full clean Irish driving license.
- > Current safe pass holder.
- > Manual handling course completed.



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Kate Leahy

CURRICULUM VITAE

Current role	Bat Ecologist
Qualifications	➤ BSc (Hons) in Zoology, University of Galway
Memberships	➤ CIEEM Qualifying Member ➤ Botanical Society of Britain and Ireland ➤ BirdWatch Ireland
Years of experience	2 years
Relevant experience	➤ Carrying out bat surveys and providing technical report inputs for multiple wind farm projects, for example: • Cooloo Wind Farm, Co. Galway • Cahermurphy Wind Farm, Co. Clare • Lackareagh Wind Farm, Co. Clare ➤ Appropriate Assessment, Natura Impact Statement and Ecological Impact Assessment preparation for public infrastructure and forestry ➤ Experience in habitat surveying, including Annex I habitat condition assessments ➤ Protected species surveys including otter, badger, marsh fritillary and bat
Key strengths and areas of expertise	➤ Production of high-quality writing ➤ Map creation and data management on QGIS and ArcGIS ➤ Knowledge of protected areas under the Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC) ➤ Habitat identification according to Fossitt (2000) using relevés, species ID using keys
Interpersonal and communication skills	➤ Strong communication and teamwork skills ➤ Public engagement through Cell Explorers events during period of volunteer work ➤ Skilled in concise, informative writing – was awarded Best Project Zoology 2023, University of Galway for achieving the highest grade for final year project ➤ Recipient of the Employability Award, University of Galway
Licences and certifications	➤ Full, clean driving licence ➤ Manual handling ➤ SOLAS SafePass ➤ Water Safety Training ➤ Coillte Environmental Risk Assessment Course Certificate ➤ Remote Emergency First Response Level 1



Mairead Kavanagh

CURRICULUM VITAE

Mairead Kavanagh is an enthusiastic and passionate Ecologist, having joined MKO in May 2023. Mairead holds a BSc Botany and Plant Sciences, National University of Ireland, Galway. Since joining MKO, Mairead has been a valued member of the MKO Ecology Team. In her role as an ecologist, Mairead has gained experience in a range of different projects across several sectors, including public infrastructure, forestry, renewable energy, conservation and housing.

Current Role	Practitioner Ecologist
Qualifications	- BSc. Botany and Plant Sciences, National University of Ireland, Galway - Certificate in Digital Mapping and GIS (Geographical Information Systems)
Years of Experience	3 years' experience as an Ecologist with MKO
Relevant Experience	Assisting in the survey effort for multiple wind farm projects, including: - Ballivor Wind Farm, Co. Meath - Clonberne Wind Farm, Co. Galway - Maughanaclea Wind Farm, Co. Cork In addition to leading the survey effort and assisting in the production of EIA reports for a number of wind farms currently at the pre-planning stage. - Preparation and production of Appropriate Assessment Screening Reports and Natura Impact Statements for housing, public infrastructure, and forestry. - Assisting in the production of EIAR reports for multiple wind farm sites. - Experience in conducting a range of species-specific surveys, including wintering and breeding birds, marsh fritillary, and mammal surveys. - Leading survey effort for large scale projects, including wind farms and roads projects. - Supervising construction activities and working as an Ecological Clerk of Work (ECoW), carrying out operational and condition compliance monitoring of habitats, fauna and flora. - Carrying out invasive species surveys and developing management plans for their eradication and sustained management, including large scale mapping of Rhododendron in Killarney National Park.
Practical Skills & Aptitudes	- Experience with ArcGIS and QGIS - Field survey skills, including Annex I habitat assessment. - Good knowledge of Irish and EU environmental law, including the Habitats and Birds directives.



	Transect and emergence bat surveys, bat habitat appraisals and roost inspections.
Interpersonal & Communication Skills	- Liaising with clients, contractors and landowners - Presenting findings of ecological surveys in client meetings
Licenses Held	- Full clean class B drivers' license - Safe Pass - Manual Handling - Personal Track Safety (Irish Rail)





RUDRAKSH GUPTA

CURRICULUM VITAE

Bio	Rudraksh Gupta has worked as an ecologist with MKO since 2021 and is the bryophyte and fern specialist within the company. He provides advice and guidance to other members of the ecology team in respect of the identification of species and assessment of bryophyte rich habitats such as peatlands, woodlands and grasslands. Rudraksh has compiled bryophyte identification manuals for the MKO ecology team in relation to specific habitats. He has undertaken numerous detailed botanical surveys and in-house trainings of peatland, upland, grassland, woodland and habitats. In addition to the above, he has undertaken Ecological Impact Assessments for a variety of developments and prepared high quality Appropriate Assessment Screening Reports (AASR) and Natura Impact Statements (NIS). He is a member of the Botanical Society of Britain and Ireland (BSBI) and British and Irish Bryological Society (BIBS). He regularly attends meetings and field trips and has written associated newsletter articles. He is an Associate member of CIEEM.
Current Role	Ecologist and Bryophyte Specialist
Qualifications	➤ BSc (Hons) Botany from University of Delhi, India (2012-2015) ➤ MSc Environmental Sciences from Amity University, Noida, India (2016-2018) ➤ MSc Biodiversity and Conservation from Trinity College Dublin (2019-2021)
Years of Experience	➤ Over four years' experience working as an Ecologist in Ireland ➤ Four years' experience in conducting vegetation and habitat surveys
Relevant Experience	➤ A5 Road Scheme Project, Co. Tyrone – Dedicated Bryophyte survey ➤ Windfarms: Conducted Multidisciplinary Walkover Surveys at Balleydermot, Ballybroder, Kilsallagh, Cunlaghfadda, Cooloo, Ballivor, Dunneill and Umma More Windfarms. ➤ Renewable energy Projects – Dedicated peatland habitat assessments ➤ Conducted Annex 1 Alluvial Woodland Surveys at Hazelwood in Sligo, Cornagillagh and Derrycarne in Leitrim for Coillte & Native Woodland Trust by setting up 20x20m plots. ➤ Experience in writing Appropriate Assessment Screening Reports, Natura Impact Statements, Ecological Impact Assessments and EIAR Biodiversity Chapters for a wide range of developments including residential, renewable energy, nature restoration, transport infrastructure and forestry. ➤ Experience in preparing Appropriate Assessment Screening Reports (AASR) and Natura Impact Statements (NIS) for a wide variety of forestry operations, including clearfell and reforestation, thinning, continuous cover forestry (CCF), forest road construction, and clearfelling fire-damaged sites for the Coillte Eco Services 2020-2026 Project since July 2022.
Practical Skills & Aptitudes	➤ Recognised expert in bryophyte and pteridophyte identification. ➤ Surveying different habitats (bogs, woodlands, fens, heaths, grasslands), birds, mammals. ➤ Proficient in the Geohub Coillte Environmental Assessment Viewer and QGIS.





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Management/ Supervision	➤ Providing guidance and advice to the MKO ecology team in using bryophytes to assess protected habitats. ➤ Training and supervising graduate ecologists with report writing (Appropriate Assessments and Natura Impact Statements) for the Coillte Eco Services 2020-2026 Project and using Geohub Coillte Environmental Assessment Viewer.
Interpersonal & Communication Skills	➤ Teamwork: Conducting, habitat and botanical with a team of 2-3 people at MKO ➤ Highly motivated, enthusiastic and dependable ➤ Communication: Regularly getting in touch with clients and landowners
Licenses Held	➤ Safe Pass ➤ Manual Handling ➤ Coillte Environmental Risk Assessment Course Certificate (C09658) ➤ Associate Member of CIEEM



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CURRICULUM VITAE



Ryan Connors

Current Role	Bat Ecologist
Qualifications	> BSc in Zoology > MSc in Conservation Behaviour
Memberships	> Bat Conservation Ireland Member > CIEEM Qualifying member
Years of Experience	> 2
Relevant Experience	> Bat Ecologist – managing survey requirements for a variety of wind energy planning applications, as well as commercial, residential and infrastructure projects. This includes scope development, roost assessments, acoustic surveying, sonogram analyses, impact assessment and report writing. > Providing essential inputs to Environmental Impact Assessment Reports. > Carrying out multi-disciplinary field surveys for a range of habitats and species. > Supervision of vegetation removal and tree felling. > Experienced in passive acoustic monitoring, with proficiency in survey design and sound analysis using PAMguard software, acquired during postgraduate studies
Key Strengths & Areas of Expertise	> Assessment of structures and trees for bat roost potential. > Acoustic analysis of Irish bats. > Manual surveying of bats incl. dusk emergence and walked transects. > Data analysis and interpretation.
Practical Skills & Aptitudes	> Bat Surveys, Mitigation and Impact Assessments > Bio-acoustic sampling and sound analysis using Kaleidoscope Pro & PAMGuard > EIAR inputs > Ecological Clerk of Works > Habitat surveys (terrestrial & aquatic) > GIS Mapping (QGIS, ArcGIS), and satellite image analysis
Interpersonal & Communication Skills	> Pitching ideas or solutions > Experience working with clients and customers in both the service and consultancy industry. > Accepting constructive criticism > Excellent communication and team working skills developed while working on a vast array of projects, both in remote fieldwork settings or within large interdisciplinary professional teams.
Licenses Held	> Safe Pass > Manual Handling > Full clean driver's license > Bat derogation license



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Bill Brazier B.Sc. (Hons.), MIFM, Ph.D (in prep)

Senior aquatic ecologist/Associate Director – Triturus Environmental Ltd.

DOB: 07/08/1988

Email: bill.brazier@triturus.ie

Phone: 086-3758585

<https://www.linkedin.com/in/bill-brazier/>



Biography

Bill Brazier (B.Sc. (Hons.) Applied Freshwater & Marine Biology, MIFM) is an aquatic, fisheries and mammalian ecologist with over 15 year's professional experience in Ireland. He is a senior ecologist, team leader and Associate Director at Triturus Environmental Ltd. and is completing a PhD in fish genetics at UCC. He has extensive experience in a wide range of ecological and environmental projects including EIAR, EclA and AA/NIS reporting, renewable energy developments, flood relief schemes, road schemes, invasive species management, Blueways/Greenways, active travel, biodiversity projects and non-volant mammal monitoring, having written and contributed to over one thousand technical consultancy reports in his career thus far. Highly competent in GIS, he specialises in aquatic ecology and freshwater fish, inclusive of fisheries assessments, macrophytes, water quality, hydromorphology, riparian habitats, otter, freshwater pearl mussel, white-clawed crayfish and amphibians, holding full national licences for all of these species. Bill is one of Ireland's most experienced otter specialists and fisheries scientists, having held over 250 section 14 authorisation licences for fisheries related work in freshwater and transitional habitats.

Qualifications

- B.Sc. (Hons) Applied Freshwater & Marine Biology, Galway-Mayo IT (2006-2010) (1.1 grade)
- Ph.D. fish ecology & genetics (final year deferred), University College Cork (2010-present)

Employment history

- January 2023 – present – Associate Director, Triturus Environmental Ltd.
- April 2019 – present – Senior aquatic ecologist, Triturus Environmental Ltd.
- 2011 – 2018 – Freelance ecological consultant (mostly with Triturus Environmental Services)
- 2010 - Marine Institute Archival Data Analyst bursar

Key skills & competencies

- EIAR, EclA, AA, NIS
- Electro-fishing, fish salvage, fisheries assessments, fish health screening, fish habitat appraisals
- River hydromorphology (including RHAT, MQI, MORPH indices)
- Environmental DNA (eDNA) surveys & metabarcoding (including dietary DNA studies)
- Ecological Clerk of Works (EcoW)
- Biological water quality (Q-sampling, SSRS, SSIS)
- GIS, digital terrain models, habitat mapping & bathymetric surveys
- Ecological design and habitat creation
- Ecological training delivery (OPW staff, local authorities, citizen scientists etc.)
- Invasive species and management
- Otter surveys (including Human Disturbance Index, population genetic studies, dietary DNA studies, habitat management, artificial holt design/installation & trail camera monitoring)
- Protected species surveys (freshwater pearl mussel, white-clawed crayfish, amphibians, mammals, macrophytes, freshwater gastropods etc.)
- Biodiversity management, enhancement & community engagement
- ISA National Powerboat Handling Certificate (Level 2) & Certificate in Personal Sea Survival Techniques
- Graphic/web design and digital/print publication (Adobe suite)

Selected project experience

Renewable energy developments

Wind, solar & other renewable developments (client: numerous)

Bill has undertaken detailed, industry-leading aquatic and fisheries baselines for a very high number of consented and proposed renewable energy developments (>100 individual projects, list available upon request) throughout the state in the 2018-2026 period. This work has been regularly completed for large companies such as FuturEnergy Ireland, Greensource, SSE Renewables, Bord na Mona, Galetech, Gas Networks Ireland, Brookfield, Ørsted and Statkraft.

The work on each project typically encompasses electro-fishing, fisheries habitat appraisals, eDNA, biological water quality, white-clawed crayfish, Annex I aquatic habitats and otter surveys, with specialist surveys for species such as common lizard and freshwater pearl mussel on a site-specific basis. Experience includes both baseline and pre-construction data collation for proposed wind farms and solar farms (inclusive of grid routes), with more recent experience on battery energy storage systems (BESS), biogas facilities and gas pipelines. The data collected informs EIAR/NIS preparation and planning applications.

Work on larger-scale and higher-profile developments includes Glenora wind farm, Derrinlough wind farm, Cushaling wind farm, Meenbog wind farm, Meentycat wind farm, Castlebanny wind farm, Timahoe North solar farm, Dublin Array, Shannon LNG Project and Gas Network Ireland's Strategic Gas Emergency Reserve (SGER).

Habitat Restoration & Management

River Burren Riparian Quality Index study 2025-2026 (client: Carlow County Council)

Triturus Environmental Ltd. developed a novel technique to assign a quality rating to riparian habitat by examining riparian (ecosystem services), structure / integrity and contiguous land use practices. The extensive study over 35km of the River Burren tributary of the River Barrow in Co. Carlow was the first of its kind in Ireland and provided invaluable insights into the restoration of riparian ecosystems.

Royal Canal *Myxas glutinosa* survey & management plan, 2025 (client: Fingal Co. Co. & NTA)

Triturus were commissioned by DBFL Consulting Engineers Ltd., on behalf of Fingal County Council and the National Transport Authority (NTA), to undertake survey for the endangered glutinous snail (*Myxas glutinosa*), a highly endangered freshwater mollusc, to inform the proposed Royal Canal Urban Greenway Scheme. The most significant populations of the snail found in recent decades were recorded and a detailed management plan was developed for the species conservation.

Ardcanaght (Castlemaine) Habitat Creation Feasibility Study, 2023 (client: OPW)

Considering site-specific works constraints and costly proposed refurbishments to a total of 3.7km of existing flood embankments at Castlemaine, a habitat creation feasibility study investigating a managed retreat scenario involving the re-flooding of lands (embankment breaching) within the polder was completed. Triturus conducted detailed baseline surveys including habitat mapping, ornithology and aquatic ecology of the 140 hectare site were undertaken and a detailed habitat creation feasibility report was prepared. The study concluded the benefits of carbon capture through the re-creation of natural intertidal saltmarsh and wetland habitats in addition to habitat creation through planting of native woodland.

Ecosystem Pollution Assessments

PFAS contamination study of aquatic food webs 2025-2026 (client: Dublin Airport Authority)

Triturus completed the first aquatic food chain PFAS study in Ireland on behalf of Dublin Airport Authority. The very detailed study examined the transfer and bioaccumulation of PFAS in invertebrates, fish and otter using molecular techniques. In this respect it was also the first study to examine metabarcoding of otter diet in spraint to identify the prey base linkages for contamination transfer to top predators.

[Liffey Estuary transitional fish surveys & biological water quality assessment, 2025-2026 \(client: Encyclis\)](#)

Triturus was commissioned on behalf of Encyclis Ltd. to undertake benthic invertebrate, fisheries and sediment quality surveys to define estuarine biotopes inclusive of ecosystem health on the River Liffey Estuary in the vicinity of the Dublin Waste to Energy water discharge near Poolbeg, Co. Dublin. Comprehensive surveys inclusive of beam trawling, fyke netting, seine netting and Van Veen grab sampling for invertebrates / sediment classification was undertaken inclusive of laboratory analysis.

[Tara Mines heavy metals study, 2025 \(client: Tara Boliden\)](#)

Triturus completed an ecosystem level study examining heavy metal pollution in invertebrates, salmonid and cyprinid fish in the River Boyne. It also examined sediment heavy metal pollution using sediment cores, biological water quality and fish community structure. A comprehensive report was prepared.

Fisheries

[Liffey Estuary transitional fish surveys & biological water quality assessment 2025 \(client: Encyclis\)](#)

Undertook an aquatic and fisheries baseline survey of the River Liffey Estuary in the vicinity of the Dublin Waste to Energy water discharge near Poolbeg, Co. Dublin. This included detailed baseline surveys of fisheries, physiochemical, benthic sediment and benthic invertebrate data for the heated discharge to the Liffey Estuary from the Dublin Waste to Energy plant to satisfy industrial emissions licence environmental compliance conditions. The fisheries survey included beach seining, fyke netting and beam trawling methodologies and aimed to assess the diversity and abundance of fish in the Liffey Estuary, focusing on the area adjacent to the Dublin Waste to Energy plant heated water discharge. Surveys of the sediments and benthic macro-invertebrate community were also completed through the use of grab sampling to inform biotope mapping and estuarine sediment/ biota quality.

[Great Island CCGT Power Station, 2022-2025 \(Client: Aztec & SEE\)](#)

Completed multiple 3-week long fish impingement studies of the cooling water system of Great Island CCGT to provide data on the fish species in Waterford Estuary and recommendations for fish conservation as part of plant operations.

[Fish salvage/translocations \(client: various\)](#)

Completed a very high number of fish salvage/translocation operations on rivers, lakes and Irish canals to facilitate repair and diversion works, typically utilising a combination of boat-based electro-fishing and or backpack electro-fishing but also seine netting and fyke netting. Clients include Waterways Ireland, Irish Rail, and local authorities.

[Tarmonbarry Weir rehabilitation and fish bypass channel design, 2022 \(client: Waterways Ireland\)](#)

Completed detailed baseline aquatic ecological and fisheries reporting to inform aquatic ecological constraints for fish passage design for Tarmonbarry Weir on the River Shannon, Co. Roscommon, in addition to informing EIAR and NIS preparation. This included an assessment of various fish passage options including rock ramp and bypass channel designs.

[Enniscorthy FRS, 2022 \(client: Mott MacDonald/OPW\)](#)

Investigated the presence and distribution of migratory shad (*Alosa* spp.) in the River Slaney, Co. Wexford using environmental DNA techniques, in collaboration with colleagues in UCD (Dr. Jens & Nettan Carlsson). The study provided comprehensive data on the distribution of shad species in the Slaney and indicated that shad preferentially selected habitat (for spawning) in the lower reaches of the river despite potential accessibility further upstream.

[Stillorgan Reservoirs, 2022 \(client: Murphy International Ltd./NM Ecology Ltd.\)](#)

Team leader on one of the largest fish translocations in the history of the state. A combination of fyke netting, seine netting and boat-based electro-fishing was undertaken to translocate fish from 6.9 hectares of two dewatered reservoir basins. This was undertaken via a section 14 licence and an accompanying national finfish transfer licence which facilitated fish capture and translocation to the Grand Canal. Prior to the salvage operation fish tissue and organ samples were collected and screened for bacteriology, histology and immunology by the Marine Institute as part of fish health screening. More than 7000 perch, stickleback and

brown trout were translocated to receptor site. The dewatered reservoirs were successfully decommissioned following fish salvage.

[Sea lamprey spawning survey, Lower Mulkear River, 2018 & 2022 \(client: IDA\)](#)

Undertook a sea lamprey spawning survey of the Lower Mulkear River, Co. Limerick used a fixed-wing drone and infrared imagery to detect sea lamprey redds. Redd sites were validated on the ground using an RTK-enabled Trimble GPS and a correction factor was developed based on the accuracy of detection by the drone relative to data collected in the field. The project successfully established the most important zones of the river used by spawning lamprey with over 50 redds detected. This was the first time an aerial drone had been used to map sea lamprey redds in Ireland. The surveys were repeated during 2022 to capture river lamprey spawning in addition to sea lamprey. Environmental DNA (eDNA) was collected to support the findings of the study.

[Meenbog fisheries restoration, 2021 \(Client: MKO\)](#)

Completed a very detailed catchment-wide study of fisheries habitat following the Meenbog peat slide (Nov 2020) over 19km of river channel, producing a detailed report outlining the identified impacts and making management recommendations for fisheries enhancement to facilitate river ecosystem recovery.

[Fermoy Weir, 2021 \(client: DixonBrosnan\)](#)

Completed the aquatic and fisheries baseline (including electro-fishing) for proposed weir works on the River Blackwater, Fermoy, Co. Cork. The survey also investigated the distribution of migratory shad species (*Alosa* spp.) in the River Blackwater using environmental DNA techniques, the first time such a study had been completed in Irish waters. The results indicated that shad species were unable to navigate instream barriers and were confined to the lower reaches of the River Blackwater.

[Lake & specialist macrophyte surveys](#)

[Royal Canal macrophyte & invertebrate monitoring surveys, 2022-2026 \(client: ROD\)](#)

Undertook annual surveys of the Royal Canal between Spencer Dock and Kilcock over a five year period years surveying 40 survey reaches. The comprehensive surveys documented the full diversity of aquatic plants and invertebrates each year, greatly contributing to the knowledge base of species distribution within the canal inclusive of invasive species and rare/protected species such as opposite-leaved pondweed. The data has informed and will continue to inform numerous infrastructural proposals by identifying key ecological constraints and supporting mitigation by avoidance and or design.

[Lough Funshinagh Interim & Permanent Flood Relief Schemes, 2024-2025 \(client: Roscommon Co. Co. & OPW\)](#)

Undertook an aquatic and fisheries baseline assessment of Lough Funshinagh, a designated turlough, and numerous surrounding hydrologically connected wetlands. The ongoing work involved collaboration with experts from Arup and Ryan Hanley working within a large multi-disciplinary team to support the preparation of the EclA and NIS for the permanent and interim flood relief schemes. Several examples of the Annex I habitat 'Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation (3150)' (aka rich pondweed lake habitat) were recorded during the survey of the 47 hectare (summer area) turlough basin. The rare molluscan fauna *Myxas glutinosa* and *Anisus vortex* were recorded (in adjacent Lough Ree) in addition to the rare water beetle *Dytiscus circumcinctus*.

[Floating river vegetation survey of the Lower River Lee, Co. Cork, 2020 & 2025 \(client: various\)](#)

Conducted detailed surveys of the distribution of Annex I (3260) floating river vegetation in the Lower River Lee between Inniscarra Dam and Cork City Centre. Transect and underwater dive surveys were undertaken using random replicated blocks. The distribution and cover of *Ranunculus*, *Potamogeton*, *Callitriche* and moss species was estimated and distribution maps compiled.

[Ballyallia Lake floating boardwalk & jetty installation, 2023 \(client: Clare County Council & MKO\)](#)

Undertook an aquatic and fisheries baseline assessment of Ballyallia Lake SAC (000014) and SPA (004041), surveying for the presence of rare macrophytes invertebrates and fish including profiling the lake typology through the collection of physiochemical water quality. Surveyed for Annex I 3150 habitat in addition to recording a diverse macrophyte assemblage. Lake eDNA metabarcoding was used to profile the fish stocks successfully. The results informed design proposals for the proposed development.

Opposite-leaved pondweed (*Groenlandia densa*) management plan, 2018-2023 (client: IDA)

Completed detailed opposite-leaved pondweed surveys of the Loughmore Canal, Co. Limerick through a full macrophyte audit of the canal which was also mapped with fixed-wing drone. A detailed management plan was prepared in light of proposed flood alleviation works to conserve opposite-leaved pondweed. A follow up survey post canal maintenance and implementation of the management plan in 2021 resulted in a 82-fold increase in the distribution of the legally protected plant within the study area (8200%).

Floating river vegetation survey of the Enniscorthy FRS, 2022 (client: Mott McDonald & OPW)

The most comprehensive floating river vegetation survey ever undertaken in Ireland was completed on the River Slaney part of the Slaney River Valley SAC (000781), during June 2022. The survey included real-time drone (UAV) imagery and was used in conjunction with boat-based surveys to map total FRV distribution and coverage on the lower River Slaney over 12km of channel using a total coverage approach. The ecological surveys also included site specific surveys for the Flora Protection Order macrophytes *Callitriche truncata* and *Groenlandia densa* with numerous new records collected. The rare pondweed hybrid *Potamogeton x cooperi* was also identified.

Lough Skannive water abstraction, Carna 2019-2020 (client: Ryan Hanley)

Conducted a detailed lake habitat survey of the macrophyte community of a 50-hectare lake using transects. This helped profile vegetation corresponding to the Annex I 3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) and informed EIAR preparation.

Lough Aderra aquatic management plan, 2021 (client: Ballintotis Community Council & LAWPRO)

Completed a baseline aquatic ecology survey of Lough Aderra, Co. Cork. The survey informed the preparation of a detailed plan to manage eutrophication and the proliferation of noxious growth of the native macrophyte *Myriophyllum spicatum*.

Páirc na Mara Marine Innovation Park, 2018-2020 (client: Ryan Hanley/ Údarás na Gaeltachta)

Preparation and management of Biodiversity & Water Quality Chapter for EIAR report. The project involved fresh water abstraction from the Lough Skannive catchment, Co. Galway and the development of a marine innovation park. Extensive baseline surveys were completed including catchment-wide electro-fishing, Arctic charr netting and spawning surveys, physiochemical water quality including Q-sampling, lake macro-invertebrates, detailed lake habitat surveys including macrophytes and classification of Annex I oligotrophic isoetid lake habitat (3110). The baseline surveys were conducted in 4 lake basins and in multiple feeder rivers. The baseline data compiled informed the preparation of a very detailed Environmental Impact Assessment report that involved a multidisciplinary approach. It included the application of water balance modelling according to UKTAG thresholds relative to the identified aquatic sensitivities. This ensured Water Framework Directive compliance in adherence to a detailed schedule of environmental commitments. It also delivered commitments to protect Annex I aquatic habitats and salmonid fish, inclusive of the Red-listed Arctic char.

Loch an Mhuilinn water abstraction, 2017 (client: Ryan Hanley)

Detailed bathymetric study of Loch an Mhuilinn, Co. Galway to inform fresh water abstraction, in addition to aerial drone surveys. Surveys were undertaken using state of the art hardware and software, RTK-enabled Trimble GPS, Lowrance SONAR, fixed wing drone and ReefMaster software. The Annex I littoral habitat 3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) was characterised with over 20 species of macrophyte plants records including *Nitella flexilis* and *Elatine hydropiper*. Lacustrine littoral salmonid spawning areas were identified and a comprehensive report was prepared.

Otter (selected projects only)

Carlow otter survey, 2025-2026 (client: Carlow County Council)

Undertook a county-wide otter survey in County Carlow comprising the entire length of the Mountain River and Burrin River, plus sections of the River Barrow and River Slaney, covering 75km of channel. A comprehensive report with focus on management and conservation was prepared. The survey utilised the novel Human Disturbance Index (HDI) and Total Corridor Otter Survey (TCOS) methodologies. The survey also assessed and calculated RHAT scores along each surveyed watercourse and was able to relate river hydromorphology to otter sign distribution. A parallel study of the River Burrin tributary of the River Barrow developed a novel Riparian

Quality Index (RQI) that characterised river reaches for restoration by examining riparian services function, riparian structure and land use management practices.

[Fingal otter survey, 2024-2025 \(client: Fingal County Council\)](#)

Undertook a large-scale otter survey across 14 rivers (102km) and all coastal habitat (120km) within Fingal County Council jurisdiction and prepared comprehensive report with a primary focus on management and conservation. The survey utilised our novel Human Disturbance Index (HDI) and TCOS methodologies. The survey also assessed and calculated RHAT scores along each surveyed watercourse and was able to relate river hydromorphology to otter sign distribution. The results will be used to inform local biodiversity policy and developments.

[Midleton Flood Relief Scheme, Co. Cork, 2018 and 2025 \(Client: Arup\)](#)

Completed a catchment wide otter survey in 2018 and again in 2025, preparing a detailed baseline report on otter sign records to inform EIAR preparation and impact assessment.

[Dublin City otter genetics, 2022-2025 \(client: Dublin City Council\)](#)

As a follow-on from the initial Dublin City otter survey (2018-20), Bill formed part of the specialist core team to re-survey the area and collect otter spraint for detailed genetic analysis. Working with colleagues at UCD, the samples were sequenced and analysed using single nucleotide polymorphisms (SNPs) in an attempt to accurately estimate the number of individual otters in the greater Dublin area for the first time, thus forming a crucial part of future otter management and conservation in Dublin City.

[Royal Canal Greenway Otter & Badger Survey, 2021-2025 \(Client: DBFL\)](#)

Undertook an 8km surveys of the Royal Canal between Castleknock and Leixlip over 3 x time periods to inform the EIAR preparation for the Royal Canal Urban Greenway. It included trail camera monitoring, site specific mitigation and conservation measures for otter (and badger) populations.

[Glashaboy/ Sallybrook Flood Relief Scheme, Co. Cork, 2016-2025 \(Client: various\)](#)

Undertook extensive otter surveys of the Glashaboy River and tributaries including holt monitoring with trail cameras over multiple time periods between 2016 and 2025.

[Cork City otter survey, 2020-2023 \(client: Ryan Hanley/Cork City Council\)](#)

Completed the most comprehensive otter survey and subsequent report of the Cork City area and collected an unprecedented number of genetic samples to analyse and estimate the otter population of the wider Cork City area. The findings of the survey are to be incorporated into the latest biodiversity policy for the city.

[Dun-Laoghaire Rathdown otter survey, 2019-2020 \(client: Dun-Laoghaire Rathdown County Council\)](#)

Undertook a large-scale otter survey across 12 rivers and all coastal habitat within DLR jurisdiction and prepared a comprehensive report with a large focus on management and conservation. The survey utilised our novel Human Disturbance Index (HDI) and TCOS methodologies. The survey also assessed and calculated RHAT scores along each surveyed watercourse and was able to relate river hydromorphology to otter sign distribution.

[Dublin City otter survey, 2018-2020 \(client: Dublin City Council\)](#)

Completed the largest survey of urban otter populations in Ireland to date and prepared a comprehensive report with a large focus on management and conservation. The lower reaches of over 20 watercourses within Dublin City were surveyed for otter signs using the novel Total Corridor Otter Survey (TCOS) methodology (developed by Triturus), with a particular emphasis on quantifying and mapping otter habitat. RHAT methodology was used to classify and map otter habitat quality along 500m sections of each watercourse. Novel methodology (the Human Disturbance Index, HDI) was developed by Triturus and used to detect relative levels of human disturbance/encroachment on riparian areas and the relative effects on otter sign distribution. The study identified an important link between riparian seclusion and otter breeding areas, greatly informing future management in Dublin City and improving knowledge of urban otter populations. The findings of the survey have been successfully incorporated into the latest Dublin City biodiversity policy.

[River Bride \(Blackpool\) Flood Relief Scheme, \(2015-2024\) \(Client: Ryan Hanley & OPW\)](#)

Undertook detailed otter surveys over five separate years (2015, 2016, 2018, 2019 & 2024) on the River Bride including trail camera surveys. The 2024 work involved the collection of otter spraint for genetic analysis and

was used to estimate the number of otters in the wider Cork City area utilising microsatellites.

Royal Canal Cycleway Phase 4B, 2022 (Client: Dublin City Council)

Undertook a 10km survey of the Royal Canal Premium Cycle Route Phase 4B between Ashtown and the River Liffey confluence (Spencer Dock). It included site specific mitigation and conservation measures for otter (and badger) populations.

Tullamore Otter Survey, 2021 (Client: Tullamore Tidy Towns)

Undertook an otter survey of the Tullamore River over c.5km channel to inform a management and conservation plan for otter. It also included a trail camera study of breeding and resting areas.

Poddle FAS Otter Survey, 2021 (Client: Nicholas O' Dwyer)

Completed a survey along 8km of the River Poddle and prepared a detailed baseline report to inform mitigation for the flood alleviation scheme.

Santry River Otter Survey, 2021 (Client: Dublin City Council)

As part of the Santry River Restoration Project an otter survey was conducted over 11km of river channel with a conservation and management plan prepared for otter.

Lower River Lee Flood Relief Scheme Otter Survey, Co. Cork, 2014-2015 (Client: OPW & Ryan Hanley)

Extensive otter surveys of the Lower River Lee, Curraheen, Bride and Glenamought Rivers were undertaken over two years between the summer of 2014 and autumn of 2015. The surveys included boat and bank-based surveys of activity including the monitoring of holting areas using trail cameras. A comprehensive report with mitigation was prepared to prevent impacts to the species.