The Glasgow Naturalist (2026) Volume 28, Part 4, 1-3

EDITORIAL

Things to come

I.C. Wilkie

School of Biodiversity, One Health and Veterinary Medicine, University of Glasgow, Glasgow G12 8QQ

E-mail: iain.wilkie@glasgow.ac.uk

This, the fourth and final issue of Volume 28 of *The Glasgow Naturalist*, comprises eight articles and so, like the previous issue (nine articles), is a rather slim affair. Although the number of manuscripts submitted for inclusion in this issue – ten – was the same as for last year's, one was rejected after peer review and the revised version of another, which was anticipated following a supportive review, was not provided due to the author's personal circumstances. In general, this confirms that, since 2019, there has been a sustained decline in the annual submission rate of routine (i.e. not supplement-related) manuscripts. Because the reasons for such an obviously concerning trend are unclear, it is difficult to suggest a course of action to reverse it. A tentative suggestion for at least mitigating it, as well as permanently buffering the journal against "lean times", is that some of the material currently published in the *GNHS Newsletter* could in future be diverted to the journal. I am thinking of, as an example, excursion reports, which often contain important information (see e.g. Moss, 2024; Gray, 2025) that might have a better chance of reaching the wider scientific community if safeguarded in a regular section of the journal. Such reports would not need to be peer-reviewed. Another relevant factor is that the journal is very dependent on contributions from GNHS members: over the past eight years members have authored or co-authored on average 67% of the articles in each issue, the range being 52% to 80%. I see no trend in this figure, though interpretation is complicated by the inclusion of supplement sections in most issues. It is alarming, however, that without members' submissions there would have been no issue this year or last year. I hope that this both encourages members to continue contributing to the journal and demonstrates the need to attract more authors from further afield.

Publicising the journal and its contents is a potential strategy for stimulating wider interest. As it happens, during the first three months of 2026 the journal received unprecedented exposure in the print media: an article from the previous issue (Weddle, 2025) featured on the front page of *The Herald* and in *The National* (Hilley, 2026; Williams, 2026), and one from the present issue (Rawlins & Hammatt, 2026) was the subject of pieces in *The Dunoon Observer*, *The Scotsman* and *Scottish Field* (Anonymous, 2026; Hay, 2026; Forbes, 2026). The journal was named in all of these, and so it will be interesting to see if there is any evidence of an upturn in either the article submission rate for the 2027 issue or the number of online viewings of published articles on the journal website (as reported monthly to the Editor by *Crossref* – the organisation with which each article's DOI (Digital Object Identifier) is registered).

All the articles in this issue relate to localities in either the Clyde Sea Area or Glasgow and the Clyde catchment, a tighter geographical scope than usual but one that accords with the journal's explicit remit of focusing "on studies from the West of Scotland". Two of the papers concern the biodiversity of Glasgow Botanic Gardens (GBG). I am particularly pleased to see the account of the GBG vascular plants published at last (Philip, 2026). This is the final contribution in the series *On the Wildside Revisited: 200 Years of Wildlife in the Glasgow Botanic Gardens*, Parts 1, 2 and 3 of which were included in the 2019, 2021 and 2022 issues respectively. Its publication was delayed by a combination of factors not the least of which was the COVID-19 pandemic. It and the other GBG paper (Weddle, 2026) are typical products of the traditional approach to natural history in which the compilation of a species list depends on identifications based primarily on morphology, with habitat, geographical location and (in the case of animals) behaviour perhaps also being taken into account. By way of contrast, the species lists in the novel paper on the midge fauna of the Holy Loch Nature Reserve (Hammatt, 2026) were generated only by DNA barcoding, which may be a sign of things to come in natural history.

DNA barcoding is an example of a microgenomic identification process, i.e. it involves the sequencing of a small segment of an organism's genome and then searching for matches between this and sequences in a reference library derived from morphologically identified specimens. The standard barcode for animals is a fragment of the mitochondrial cytochrome *c* oxidase I (COI) gene, partly because this gene evolves rapidly enough to allow closely related species to be distinguished (Hebert *et al.*, 2003). This methodology has been increasingly exploited over the past 25 years and has been assisted by the development of the Barcode

of Life Data System (BOLD), which is a continuously expanding public database of COI sequences (Ratnasingham & Hebert, 2007). As far as professional taxonomists are concerned, its main advantage is that, with the advent of high-throughput, low-cost sequencing technology, large numbers of specimens can be processed and ascribed identifications quickly. It may seem to be of remote relevance to amateur naturalists. However, palm-sized sequencers that can be used in the laboratory or in the field are already available (Seah *et al.*, 2020; Oxford Nanopore Technologies, 2026). With continuing progress in electronic miniaturisation and computerised information storage, it may not be long before we see hand-held identification devices realising "the promise of a schoolchild with a barcoder in hand learning to read wild biodiversity" (Consortium for the Barcode of Life, 2004; Hebert & Gregory, 2005). More realistically, such technology could make life a lot easier for committed naturalists dealing with groups that are taxonomically "difficult", for example due to the prevalence of morphologically indistinguishable cryptic species (an unfolding nightmare for amateur lichenologists).

The vision of the barcoding schoolchild illustrates another advantage claimed for barcoding methodology: that it will "democratise access", which means, in this context, enabling many more people, i.e. non-specialists, to discover the scientific names of the organisms they encounter (Consortium for the Barcode of Life, 2004; Srivathsan *et al.*, 2021). It will thus be a high-tech addition to the growing range of resources already serving this aim, most notably the wide choice of smartphone apps now available for identifying many groups of animals, plants and fungi (Truong & Van der Wal, 2024). This is a commendable aim and a good thing if it inspires deeper enquiry into natural history, although such resources by themselves do not turn their users into experts. They are potentially useful tools, but all have their limitations and pitfalls for the inexperienced (Cheng *et al.*, 2023; Sussex Wildlife Trust, 2023; Jones & Jones, 2025). They are not a substitute for the specialist expertise that is the keystone of natural history - knowledge acquired through years of studying and becoming acquainted intimately with a particular group of organisms. There is no shortcut to expertise.

This is my last year as Editor of the journal. I am very pleased that Mike Rutherford, Curator of Zoology and Anatomy at the Hunterian Museum, will be my successor. Mike has extensive experience of both authoring scientific articles and journal editing. I wish him every success during his tenure. For me, it has been a privilege to be able to contribute to the Society as journal Editor over the past eight years. As I have stated repeatedly, editing the journal is a team effort and for that reason I would like to express my gratitude to: Chris McInerny for his input as Assistant Editor from 2018 to 2024; Ruth Maclachlan for administrative support (which encompasses several important tasks), formatting the articles, assembling each print issue and, latterly, taking on the job of Assistant Editor; Richard Weddle for making articles available online and looking after the website; and Tony Payne for pre-editing book reviews. I also thank the book reviewers and, needless to say, all the authors who have chosen to submit their articles to the journal. Finally, I must acknowledge the contribution of the external reviewers who have provided critical evaluations of submitted manuscripts, which is indispensable for ensuring that the journal maintains the highest scientific standards. The external reviewers for this issue were (in alphabetical order): A. Acton, C.M. Bertelli, T. Ekrem, E.G. Hancock, D. Lang, V.A. Lemâitre, P.G. Moore, M. O'Reilly, N. Simpson, G. Smart, E. Stur, K.J. Watson, M.D. Webb and one other who preferred to remain anonymous.

REFERENCES

Anonymous (2026). Seagrass makes remarkable return to Holy Loch. *The Dunoon Observer* 9th January 2026.

Cheng, Z., Li, Q., Deng, J., Liu, Q. & Huang, X. (2023). The devil is in the details: problems in DNA barcoding practices indicated by systematic evaluation of insect barcodes. *Frontiers in Ecology and Evolution* 11, 1149839.

Consortium for the Barcode of Life (2004). Barcoding life: ten reasons. https://phe.rockefeller.edu/docs/TenReasonsBarcoding-1.pdf Accessed 3rd April 2026.

Forbes, E. (2026). Seagrass defies the odds by making spectacular comeback at Holy Loch. *Scottish Field* 6th January 2026.

Gray, R. (2025). Richmond Park East - 17th July, 2025. *GNHS Newsletter* November 2025, 7-11.

Hammatt, N. (2026). An initial snapshot of the dipteran superfamily Chironomoidea at Holy Loch Nature Reserve, Argyll, Scotland, as revealed by automated DNA barcoding. *The Glasgow Naturalist* 28(4), 20-31. https://doi.org/10.37208/tgn28408

Hay, K. (2026). 'Lungs of the sea' defies odds by making comeback at former US nuclear submarine base. *The Scotsman* 8th January 2026.

Hebert, P.D., Cywinska, A., Ball, S.L. & deWaard, J.R. (2003). Biological identifications through DNA barcodes. *Proceedings of the Royal Society B Biological Sciences* 270, 313-21. https://doi.org/10.1098/rspb.2002.2218

Hebert, P.D. & Gregory, T.R. (2005). The promise of DNA barcoding for taxonomy. *Systematic Biology* 54, 852–859. https://doi.org/10.1080/10635150500354886

Hilley, S. (2026). Rare ladybird and new bee species discovered in Maryhill. *The National* 4th March 2026.

Jones, H.G. & Jones, A.J. (2025). Application and pitfalls of the use of plant ID apps for urban flora and citizen science studies. *Plant Ecology and Diversity* 18, 287–295. https://doi.org/10.1080/17550874.2025.2476938

Moss, A. (2024). Auchlochan Estate, Lesmahagow – 13th July, 2024. *GNHS Newsletter* November 2024, 6-9.

Oxford Nanopore Technologies (2026). MinION™ Mk1D.

https://nanoporetech.com/products/sequence/minion?utm Accessed 3rd April 2026.
Philip, M. (2026). The wild vascular plants of Glasgow Botanic Gardens, Scotland. *The Glasgow Naturalist* 28(4), 11-19. https://doi.org/10.37208/tgn28407
Ratnasingham, S. & Hebert, P.D.N. (2007). BOLD: The Barcode of Life Data System. *Molecular Ecology Notes* 7, 355–364. https://doi.org/10.1111/j.1471-8286.2007.01678.x
Rawlins, P. & Hammatt, N. (2026). Natural regeneration of the seagrass *Zostera noltii* in the Holy Loch, Argyll, Scotland. *The Glasgow Naturalist* 28(4), 45-47. https://doi.org/10.37208/tgn28402
Seah, A., Lim, M.C.W., McAloose, D., Prost, S. & Seimon, T.A. (2020). MinION-based DNA barcoding of preserved and non-invasively collected wildlife samples. *Genes* 11, 445. https://doi.org/10.3390/genes11040445
Srivathsan, A., Lee, L., Katoh, K., Hartop, E., Kutty, S.N., Wong, H. *et al.* (2021). ONTbarcoder and MinION barcodes aid biodiversity discovery and identification by everyone, for everyone. *BMC Biology* 19, 217. https://doi.org/10.1186/s12915-021-01141-x
Sussex Wildlife Trust (2023). The good, the bad and the middling - ID apps. https://sussexwildlifetrust.org.uk/news/the-good-the-bad-and-the-middling-id-apps Accessed 5th April 2026.
Truong, M.X.A. & Van der Wal, R. (2024). Exploring the landscape of automated species identification apps: development, promise, and user appraisal. *BioScience* 74, 601–613. https://doi.org/10.1093/biosci/biae077
Weddle, R.W. (2025). A first occurrence of Adonis' ladybird *Hippodamia variegata* (Coleoptera: Coccinellidae) in Glasgow, Scotland. *The Glasgow Naturalist* 28(3), 55. https://doi.org/10.37208/tgn28307
Weddle, R.W. (2026). Insects and other invertebrates in Glasgow Botanic Gardens, Scotland: 2025 update. *The Glasgow Naturalist* 28(4), 5-10. https://doi.org/10.37208/tgn28405
Williams, C. (2026). Rarely-spotted ladybird and new bee type make first appearance in city. *The Herald* 5th March 2026.