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Book Reviews

Life Cycles of British & Irish Butterflies

Peter Eeles

Pisces Publications, 2019. 394 pages, hardback with colour photographs and maps. ISBN 978-1-874357-88-9.
£35.00.

Most readers will skip the Acknowledgements section of a book, but in this case it is revealing. The author thanks his family for putting up with him "as I went about creating my life's work". This is no hyperbole, but an apt description of a beautiful and comprehensive book devoted to the 59 species that currently make up the U.K. resident breeding list of butterflies.

The entry for each of the 59 species follows an identical format, and those for two very Scottish butterflies - the mountain ringlet (*Erebia epiphron*) and the chequered skipper (*Carterocephalus palaemon*) - can serve as examples. The entry for the mountain ringlet is six pages long. The title page is a pictorial summary of the four stages of the species (adult-egg-larva-chrysalis) with a photo of each, enclosing a picture of typical habitat. At the bottom of the page is a calendar showing the months in which each stage can be found. There are five pictures of the adult butterfly (including the Scottish and English subspecies *scotica* and *mnemon*). Next are sections on distribution (with a map), habitat (two photos) and status. Then comes the life cycle itself, with three photos of the egg (from newly-laid to pre-emergent), seven photos of larvae covering all six instars, and one photo of the pupa. The whole entry is supported by copious text. That for the chequered skipper runs to a full ten pages with seven photos of the adult, seven of habitat, four of eggs, 18 of larvae and five of pupae. No other book I know of gives coverage to this breadth and depth.

Is it perfect? Perhaps not quite. Two authorial decisions must have been made early on. First, the book has no truck with regular migrants that might become breeding species, e.g. large tortoiseshell (*Nymphalis polychloros*) or long-tailed blue (*Lampides boeticus*), nor with species that have "left the building" but might be persuaded to return, e.g. large copper (*Lycaena dispar*) or black-veined white (*Aporia crataegi*). Second, there is an issue around citations, since many referred to in the text do not appear in the Bibliography. Eeles (who is the founder of *U.K. Butterflies* and *Dispar* websites) has chosen to limit the one-page Bibliography to books only and has put journal references onto a dedicated website. However, since the site also includes new information as it comes in, one could view this as a bonus.

This is a quite outstanding book. The treatment is lavish and the text is both scholarly and readable. It can be recommended unreservedly to any reader with an interest in British butterflies.

Tony Payne

The Vegetative Key to the British Flora (2nd Edition)

John Poland & Eric Clement

Botanical Society of Britain and Ireland, 2020. 556 pages, paperback with colour plates and black & white line drawings. ISBN 978-0-956014-42-9.
£25.00.

I was given the GNHS copy of this book to review just before lockdown in March, 2020. Consequently, I have had ample time to put it to the test. This book truly does exactly what it says on the back cover, the first paragraph of which states "This greatly revised and updated edition to the *Vegetative Key to the British Flora* offers a striking new approach to the identification of nearly 3,000 wildflowers, grasses, sedges, trees, shrubs, ferns and fern allies to be found native, naturalised or casual in the British Isles." It is an amazing achievement.

The first edition was published in 2009. The second edition has many improvements thanks to the authors, John Poland and Eric Clement, who encouraged, accepted and implemented suggestions made by the many enthusiastic users of their first edition, particularly those, like the authors, associated with the Botanical Society of Britain and Ireland. These improvements include rewritten keys, new characteristics, and new species, as well as phenological information.

The majority of books for identifying vascular plants concentrate on characteristics of the flower and fruit, but these features are relatively short-lived compared with the vegetative state of the plant itself. This is a particular problem when detailed surveys are being carried out over time, or when sites are hard to access during the flowering season. There is also the simple satisfaction of being able to identify the non-flowering plant. Many seasoned botanists will be able to recognise a wide range of plants from vegetative characteristics, but the development and refinement of keys that permit identification and verification from such features is an extraordinary achievement. The keys are innovative and much effort has been made to keep them as user-friendly as possible to allow speedy identification. I think they do take a bit of getting used to, but the accompanying glossary and excellent line drawings all help, as do the equally excellent colour plates illustrating leaf morphology and other anatomical features. I have personally used the keys and the descriptions at species level for *Rumex* and *Valerianella* identification and found them able to resolve tricky issues. Seeds and fruits will feature if required. It should be noted too that this latest edition includes up-to-date taxonomic nomenclature (following C.A. Stace: *New Flora of the British Isles*, 4th edition, 2019), invaluable for professional records.

There can be little doubt that this new volume is an essential for the professional botanist, ecologist etc., and a huge asset to all others wishing to improve their ability to identify vascular plants or satisfy their curiosity. It backs up and adds to all other means of identification. It is a developmental aid which really improves observational skills. I still find it quite mind-blowing what the authors have achieved. So, my conclusion: you will not regret getting yourself a copy of this extraordinary piece of work.

Alison Moss

The Essential Guide to Rockpooling

Julie Hatcher & Steve Trewhella
Wild Nature Press Ltd., 2019. 304 pages, paperback with colour photographs, illustrations and line drawings. ISBN 978-0-9955673-1-3.
£16.99.

This guide is a compendium of everything you want to know about the fauna and flora inhabiting our seashore rockpools. The introductory section, at 20 pages, is relatively short, but provides a résumé of the rockpool habitat and its ecology along with simple explanations of tides, shore zonation and threats to rockpool life. Useful guidance is provided on how to explore rockpools, including emphasis on the seashore code, as well as what kit to bring, how to keep safe, and recording your findings. Photographs of unusual hexagonal rockpools at the Giant's Causeway and dinosaur footprint rockpools in Skye add an unexpected twist.

The bulk of the book comprises sections on seaweeds, lichens, sponges, bryozoans, cnidarians, worms, crustaceans, molluscs, echinoderms, sea-squirts, fish, birds and mammals. If you are not familiar with all these groups, a brief outline of their attributes is presented in each section, with further details for many subgroups within the sections. The plant and animal groups are arranged in evolutionary order, as is the norm, and interspersed with these is a series of mini-guides on associated activities: extracting fauna from seaweeds, pressing seaweeds, photography, crabbing, night-time rockpooling, pootering, goggling, bioblitzing, and beach cleaning. All of these invite the reader to delve deeper into the rockpool world.

The guide is packed full of beautiful colour photographs, mostly produced by the authors, a husband and wife team based in Dorset. Additional images have been provided by David Fenwick, a renowned natural history photographer, also from south-west England. Not surprisingly, there may be a slight bias towards south-west species but this provides an opportunity to highlight interesting, and rare, species including new arrivals to British shores such as the spectacular anemone shrimp (*Periclimenes sagittifer*). There are so many good photos and fascinating creatures it is hard to pick favourites. Many of the photos have been taken in the field but quite a few are clearly studio photos using dark field imaging of live animals against a black background. This technique accentuates the colours and patterns of many rockpool inhabitants and elevates the photography into an art form.

The authors use common names, where available, for the seaweeds and animals, accompanied by proper scientific names. Some of the common names used may be quite unfamiliar but, nowadays, it is considered good conservation practice to introduce common names to help highlight our varied marine fauna and flora and bridge the gap between amateur and professional marine biologists. One little hermit crab species (*Clibanarius erythropus*), recently re-discovered in Cornwall, was given a brand new common name - the St. Piran's crab - in a competition in 2016. Annoyingly the crab has lost its apostrophe in the figure title and confusingly is also labelled red-legged soldier (crab?) in an accompanying figure. A small price to pay for this beautiful debutante crustacean.

These nit-picking gripes aside, this is an excellent volume for the inquisitive seashore investigator with around 400 seashore species illustrated and described. It is aimed at the enthusiastic amateur and avoids identification keys and the few technical terms that are used are explained in a short glossary. It is not an exhaustive inventory of seashore species and the reader is directed to standard guides in the reference section for those that want to move their identification skills up a level. This book is a companion to *The Essential Guide to Beachcombing and the Strandline* (by S. Trewhella & J. Hatcher, Wild Nature Press, 2015) which has a similar format and together they form a first class armoury for those who love to explore our shores and learn about their wildlife.

Myles O'Reilly

Atlas of Britain & Ireland's Larger Moths

Zoe Randle (and ten other authors)
Pisces Publications, 2019. 492 pages, hardback with colour photographs, maps and line diagrams. ISBN 978-1-874357-82-7.
£38.50

I have been recording moths on a regular basis since 2002. In that time two books in particular have encouraged my interest: *Field guide to the Moths of Great Britain and Ireland* (by Paul Waring & Martin Townsend, Bloomsbury Publishing, 2009) and *Field Guide to the Micro Moths of Great Britain and Ireland* (by Phil Sterling & Mark Parsons, Bloomsbury Publishing, 2012). Now there is a third publication which I expect to use on a regular basis. *The Atlas of Britain & Ireland's Larger Moths* has had a long development. It began in earnest with the Moths Count Project in 2006 and the establishment of the National Moth Recording Scheme by Butterfly Conservation in 2007 (with funding from a wide group of organisations). Moths Ireland had been founded in 2005. The two organisations have combined to produce the first atlas of larger (or macro) moths of Britain and Ireland to include distribution maps for all species.

A total of 25,642,265 records has been used as the basis for the atlas, dating from 1741 (a Kentish glory) up to the end of 2016, covering 97% of all the 10 km squares. Following submission, all the British records have been checked and verified by a dedicated team of County

recorders. The Irish records were checked by two verification committees.

The atlas has a forward by Sir David Attenborough, followed by acknowledgements to the individuals and organisations involved. There were many thousands of people who submitted records, so only the "key players" are named individually. The names of just the County Moth Recorders and the Irish verification committees take up a complete page, which gives an indication of the amount of work involved in this project.

An introduction explains how the atlas project came to happen. Then there is a section on recording, analysis and an explanation of the layout of the entries for each species. There is then an analysis of the results, followed by a discussion on why the distribution and abundance some species have changed, and finally how the analysis of all the records can be used to help moth conservation.

For each species there is a small (but high quality) image of the adult moth and a distribution map with three date categories: pre-1970; 1970-1999; and 2000 onwards (which means 2000-2016). For each of these date periods there are numbers given for the number of recorded squares for Britain (including the Channel Islands and the Isle of man) and separately for Ireland (Republic of Ireland and Northern Ireland). There are then percentages given for the change in distribution for two periods (1970-2016 and 2000-2016) and for abundance for 1970-2016. A short paragraph then states if the species is a resident or migrant and gives a general description of its distribution and habitats and whether it is increasing, declining or otherwise. Finally there is a bar chart showing the flight period(s) of the moth, showing two periods (1970-2016 and 2000-2016). This is a very good visual way of showing how some species are now emerging earlier or later, or flying later in the year than in the past. There is a straightforward index and bibliography.

Over 400 individuals and organisations have sponsored one or more species, and many well known names can be seen, including a dedication to the late John Knowler (a GNHS member and President), who did much to encourage interest in moths in the Glasgow area.

Of the 893 species included, 867 have an account with an associated dot map. For the moths that have abundance data available, 25% have declined since 1970. But not all are doing badly. The maps show several species that are new colonists from Europe. The number of species showing an expansion of their distribution (though not necessarily increased abundance) is greater than the number showing a decline.

The maps clearly show how species distributions have changed over time. A good example is the mallow (*Larentia clavaria*). It has shown an obvious decline in the north of its range and is shown as now being extinct in Scotland. Of course any atlas is bound to become out of date as new discoveries are made. The mallow was refound in East Lothian in 2020. No doubt a future edition will show this and other such changes.

By contrast, the spruce carpet (*Thera britannica*) has shown a very large increase in both distribution and abundance since 1970 and is now found as far north as Orkney.

With any atlas, it is always good to look up a species when you find something new. I have already used it several times to check the distribution of moths I have trapped for the first time in my garden. It gives an excellent summary of the current status of each species, based on the best data available. For example, I had white-pinion spotted (*Lomographa bimaculata*) in my trap for the first time in 2019. The atlas shows that it only reached Scotland in 1997, but has already reached just north of the Central Belt. It is one of several species that are new arrivals north of the border.

If you want to know the current distribution and status of our larger moths, I would thoroughly recommend this atlas to you.

Richard Sutcliffe

Exploring Britain's Hidden World. A Natural History of Seabed Habitats

Keith Hiscock
Wild Nature Press, 2018. 272 pages, hardback with colour photographs, illustrations and diagrams. ISBN 978-0-99-55673-4-4.
£24.99.

This is a seminal work, the sort that only appears once in a life-time and is also a description of a life-time's work by eminent marine biologist Keith Hiscock, observing the undersea realm around our coasts. It describes his 50 years of research and survey work on Britain's seabed habitats and draws upon knowledge of British marine life gathered over the last 200 years. This is a hefty tome with around 250 large format pages, richly illustrated throughout with high quality colour photographs and beautifully produced diagrams explaining the underwater world and its inhabitants.

The book begins with an outline of historical marine biological studies around Britain going back as far as the 1800s and includes the establishment of the marine stations at St. Andrews, Plymouth, Millport and Port Erin. The early scientists studied the seabed remotely using dredges and grabs and the seabed fauna of the British Isles became the best known in the world with early descriptions and classifications of seabed communities being developed. However, huge knowledge gaps remained. The early use of diving gear and underwater photography for seabed surveys is described along with the developments over the last 50 years with SCUBA diving surveys and improving underwater photo and video technology. The various methods utilised for seabed sampling and surveying are depicted and the concepts of marine biotopes and their mapping introduced.

The author was deeply involved in the Marine Conservation Review of Great Britain (MNCR) which commenced in the late 1980s and, over the next decade, went on to develop the marine biotope classification system which underpins the understanding of our marine communities. Although the biotope classification system is described at some length, its use - and the use of technical terms in general - is kept to a minimum throughout; a handy glossary is provided, so that this volume is accessible to a general natural historian.

The following section provides an account of all the factors that shape the seabed environment, including the physical geography and the currents, tides, temperature, wave exposure, salinity, depth and light penetration – a lesson on Britain's unique oceanography.

The main section of the book is just under 150 pages long and deals with the various seabed habitats – sediments, rocky areas, sea lochs, rias and voes, tidal races, estuaries, and saline lagoons. Each is discussed and described with photographs of key species and wonderful three-dimensional dioramas depicting the myriad of inhabitants both visible on the surface and burrowing beneath. Scotland features heavily, with its hugely varied coastline harbouring more than its fair share of habitats. We have all the sea lochs and voes and most of the saline lagoons, not to mention numerous reefs, and tide swept channels. Of particular interest are keystone species which themselves form unique habitats – including seagrass beds, kelp forests, maerl beds, horse mussel reefs, flame shell reefs (all fairly abundant in Scottish waters) and the rare and spectacular serpulid tube-worm reefs found only in Loch Creran.

The next section looks at changes in these seabed habitats. These include well understood seasonal changes as well as longer term decadal fluctuations whose causes may be related to larger scale oceanographic oscillations. The effects of diseases (e.g. in seagrasses and pink sea fans) are discussed along with the impact of non-native invasive species such as slipper limpets (*Crepidula fornicata*), carpet sea squirts (*Didemnum vexillum*) and wireweed (*Sargassum muticum*). As this work focuses on natural marine seabed communities, there is only minimal mention of the effects of human activities. The effects of climate change and seawater warming highlight potentially receding northern species, and those apparently advancing from the south; the latter include new arrivals to British waters, such as the variable blenny (*Parablennius pilicornis*) or the anemone shrimp (*Periclimenes sagittifer*).

Finally, an overview is presented on past conservation efforts and those taking place now to help protect the seabed environment, together with the impact of new technologies in helping us to survey seabed communities and collate, analyse, interpret and display information on Britain's marine life.

This is a delightful book to browse through. It showcases our seabed communities, both the glamorous and colourful epifauna, and the more clandestine burrowing creatures. It is a boon to natural historians, peppered with anecdotes on little known gems on our marine fauna, such as the mysterious red bandfish (*Cepola macrophthalma*), which hides in seabed burrows, or the extremely rare fan mussel (*Atrina fragilis*), found off Canna, and up to 40 cm long! Anyone with an interest in British marine biology should have this work on their bookshelf.

Myles O'Reilly

How Wildlife Photography Became Art: 55 Years of Wildlife Photographer of the Year

Rosamund Kidman Cox

Natural History Museum, London, 2020. 288 pages, hardback with many colour photographs. ISBN 9780565095130.
£35.00

This is a large and heavy volume containing, as you might expect, many excellent photographs, produced to celebrate 55 years of the Wildlife Photographer of the Year competition.

The book begins with a brief coverage of the history of photography from the mid-19th century, including many famous names such as Cherry Kearton and Eric Hosking.

After an account of early feats, including trip wires, the use of flash, and Herbert Ponting's photography in Antarctica with Captain Scott, the book celebrates the rise of the competition, showing David Attenborough presenting the first Wildlife Photographer of the Year to C.V.R. Dowdeswell, and describing techniques of fieldcraft and technical developments through the decades. In the first competition there were 361 entries. During the 1980s, the competition widened in scope, with 11 categories including underwater photography. Today there are over 45,000 entries.

Each chapter pursues a theme, the first being "The art of seeing" in which the photographer chooses the composition through planning, knowledge and the application of technique to produce an image which lasts - a winning picture which is always original. A brief summary of the other chapters now follows.

"Down to Eye Level" deals with eye-level perspective, which creates a dramatic effect. Frans Lanting was an influential proponent of this approach.

"A Sense of Place" covers animals in their environment, both setting the scene and conveying a message.

"And Then There was Light" describes how special light creates a sense of mood and place, emphasising the golden hour around sunrise and sunset, and examining the role of soft diffused light and even darkness.

"The Moment". A chase, a fight or a kill: catching the decisive moment requires being in the right place at the

right time, and requires skill and experience. However, when dealing with wildlife, success is never guaranteed.

"Wild Spaces" covers places from the high Arctic via the Lairig Ghru and Morecambe Bay to Patagonia and the southern oceans, and shows the importance of careful planning and intimate knowledge of the area and of photographic techniques including the use of wide-angle lenses to show foreground vegetation again a dramatic backdrop, of panoramic or underwater photography (or in one case both!), or of icy scenes which with climate change might not be there by 2030.

"Natural Design" focuses on simplicity, emphasising natural patterns which bring to the eye of the viewer an intrinsic natural appeal, including both animals and the landscape. Amongst contributory factors are mist, snow, low winter sun and reflections from still waters, and amongst techniques allowed in the competition was focus stacking to obtain a great depth of field.

"The White Canvas" shows photos which use snow, ice or a pale sky as a canvas for carefully executed and often seemingly simple compositions.

"Faster and Faster" traces developments in photographic techniques over the years, from flash powder, glass plates and heavy tripods to modern high ISO cameras, motor drives, autofocus and through the lens metering, which together make it possible to shoot sharp high-speed action sequences. The results are illustrated by dramatic shots of birds in flight.

"The Portrait and the Pose". A compelling portrait is one which causes you to pause and think about the animal, its character and its life. Not only is this achieved with stunning individual animals as diverse as sea horses, walrus and gannets, but carefully executed group shots too, such as elephants and monkeys.

"Remote Design" covers the development of taking pictures remotely using heavy and cumbersome techniques such plate cameras with trip wires and remote flash to modern infrared trip beams and wireless flash. Much thought is required to achieve the best pose, illustrated by a variety of animals.

"The Tiny Things in Life" features, as you might expect, macro photographs of insects, but also spiders and even a sea squirt!

"And Then There Was Night" illustrates early flash photography, and also modern digital images taken in the limited natural evening or night light, using high ISO settings. Amongst the most interesting photos are where the natural foreground is combined with the night sky showing star trails, and an image of a killer whale blowing taken by a number of flashes.

"Telling a Story" through the means of a single picture invites a challenge, as action so often happens out of sight - underground, underwater, at night, high up or at microscopic level.

This is illustrated by a snake swallowing tree frog eggs, which slide out of its mouth, hatch spontaneously and drop into the water below, the actual moment captured after weeks of preparation, and by a humming bird pollinating an orchid after two weeks of waiting and six flashes set up.

"Back to Black and White" was a category of the competition started after 12 years of accepting only colour entries, for which there had been a strong demand for magazine articles. From a family of kingfishers, through a night time cheetah, to a murmuration of starlings, the medium of black and white emphasises pattern instead of colour.

"Aerial Exposure". To show the sheer scale of things and highlight patterns in the landscape or of animal movement, there is little to beat aerial photography. Examples include the desolate eroded landscape of central Madagascar, denuded of vegetation and with soil washing into its rivers - a scene that triggered foreign aid to the country; a Scottish raised bog being stripped bare for horticultural peat; and a pod of narwhals in a lead (narrow crack) in sea ice, photographed after weeks of organisation, including the purchase of a float plane. Where it is not practical to hire a plane, the more recent development of drones has led to new creative possibilities, one example in the book being an aerial photograph of seals on an iceberg.

"The Underwater Revolution" charts the development of underwater photography through the invention of new techniques using housings and aqualungs, and pioneering the art of the split field technique, where half the shot is underwater and half above. Underwater images in this chapter include beluga whales, emperor penguins and sharks bursting out of a bait ball with fish in their mouths, and magnificent sea pens. There is great potential for new underwater images from this relatively unexplored environment.

"The Passion of Youth". From 1981, prizes were offered for photographers under 17. This coincided with increasing availability of more affordable equipment and the boom in TV wildlife programmes, and today the competition has fulfilled one of its original aims of inspiring a new generation of photographic artists. An inspiring collection of photos by young photographers is shown, many of whom are now household names in Britain.

"The Final Message" presents pictures which make you stop and think - the last of the golden toads in Costa Rica before they succumbed to chytrid disease, the head of a gorilla in a frying pan, a loggerhead turtle and a thresher shark caught in a fishing net, men carrying away a bloody tusk from an illegally killed elephant, one of the last Sumatran tigers, a polar bear on thin ice showing the uncertain future for this species, oiled pelicans awaiting cleaning by volunteers, an iconic image of a seahorse with its tail grasping a cotton bud floating in the ocean, and finally a dead rhino with its horn newly hacked off.

All in all this, is an enthralling book, at once fascinating, uplifting and horrifying, full of beauty, wonder and tragedy.

David Palmar