The Little Owl
Population Dynamics, Behavior and Management of *Athene noctua*
Second Edition

The basic biology of owls is poorly understood compared to that of other bird species. The Little Owl, *Athene noctua*, is one of the best models for biological and conservation research. Though widespread across Europe, Asia and North Africa, populations of the Little Owl are now in decline, making studies of its behavior and ecology all the more important. This extensively revised and updated second edition features substantial new long-term data on population dynamics, behavioral observations and breeding biology of the Little Owl. The authors discuss its wide-ranging ecology, genetics, subspecies and population status by country. In addition, they outline a research strategy and monitoring program. Exceptional illustrations of all 14 subspecies cover embryonic and chick development, feather growth and molt, including high-quality drawings presenting concrete management suggestions. Whilst being an invaluable resource for academic researchers, its accessible and straightforward style will also appeal to amateur ornithologists and enthusiasts.

*Dries Van Nieuwenhuyse* is a life-long owl researcher and statistician active in ecological method development and publication. He is Professor of Performance Management at EHSAL Management School in Brussels and thought leader in fact-based decision-making. He has authored five books on the impact of technology and statistics on the decision-making processes of organizations, and in particular brings his skills as a statistician to his ornithological work.

*Ronald van Harxen* is Chairman of the Dutch Little Owl Working Group (STONE), and has been active in the research and conservation of the Little Owl in the Netherlands and internationally for more than 43 years. His research focuses on breeding biology and population dynamics within nestbox populations. He received several awards including the Special Achievement Award in 2016 from the World Owl Hall of Fame, International Owl Center, Houston, USA.

*David H. Johnson* is Executive Director at Global Owl Project, USA. He is currently working on a “12-year demographic study of the Burrowing Owl (*Athene cunicularia*) 2010–2022.” He has worked in natural resource conservation for 42 years and has written two previous books on owls, wildlife and fisheries.
The Little Owl

Population Dynamics, Behavior and Management of *Athene noctua*

Second Edition

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Foreword

When the first edition of the English monograph on the Little Owl was published in 2008, I was one of the authors since I was involved in the study of this owl at the time, which I studied in France from 1984 to 2006. I was very happy to work with Dries and David. A monograph represents an important work of collecting data and information, as well as exchanges with specialists of the species in a large number of countries, reading and writing in order to give the reader the most synthetic view possible on each topic covered. For me, this work was very rewarding because I learned a lot while writing this monograph. Today it is with pleasure that I write this foreword of the only English updated monograph on the Little Owl, published by Cambridge University Press.

Since the writing of the first edition, publications devoted to the species have doubled, which made its updating essential. Techniques have advanced in many topics allowing scientific studies to shed new light on the biology and ecology of this very endearing owl. Hence, this monograph includes more data on aspects such as genetics, morphology and biogeography of the different subspecies.

The drawings of Joris De Raedt are of beauty and of great precision, especially those which illustrate the taxonomy. I am sure they will make this monograph enjoyable to read for conservationists and scientists alike.

The Little Owl saw its numbers collapse in many European countries during the twentieth century and the global causes are identified, linked in particular to agricultural practices which have profoundly modified the habitats of the species. In France, the National Museum of Natural History sounded the alarm in 2018 on the fall in bird populations linked to agricultural areas: 33% decrease in 15 years, the decline having accelerated between 2016 and 2017. Reasons for this decline are related to intensive agriculture and pesticides. However, the species, being more generalist in terms of diet and more eclectic in the choice of its habitat, seems to resist in a certain number of landscapes, even increasing its population locally. The status of the species varies according to the situation of the meta populations. It will be interesting to see what impact global warming will have on this species, native to the Mediterranean basin.

The Little Owl is an interesting species because studying it illustrates our ecological footprint and our impact on rural landscapes. It was the emblem of Athena, goddess of wisdom and science among the Greeks, which is why its decline or its maintenance sends back to us the symbolic image of our own “wisdom.”
Foreword

This book is the result of a huge amount of work, I hope it will be of use to all owl enthusiasts. It is undoubtedly a reference book on the Little Owl. Many thanks to Dries, Ronald and David for completely revising the first edition and making it an indispensable work.

Jean-Claude Génot
Ecologist
Preface

Little Owls have always meant a great deal to me since my childhood. It was one of the first bird species that I learned to know and appreciate. My favorite bird lived in an old pollard willow nearby. More than ever little things are felt to be more important in life than big things. The Covid pandemic showed the relativeness of all things in life and forced us to go back to the basics. This was not an evident period for many people that suffered from illness, lost loved ones or were exposed to extreme stress due to solitude and psychological tension. This negative spiral led to sorrow and intense need for consolation. No wonder that compassionate communities emerged, bringing people and local organizations together at intimate places of consolation to find peace of mind and get back on the road.

I dedicate this book to all people, especially youngsters, that had some mental difficulties in this hard period, seeking comfort and balance in life. May this poem offer solace and ease of mind like my Little Owl is still offering to me through each glimpse, each hoot, each facial expression of this wonderful bird with the golden eyes.

Pollard Willow

I bury myself with soaking feet
in the grooves of my skin I preserve
the touches of grandchildren and grandparents
sometimes I break out of myself, my sap flows too fast
my hollows silence the birds
that have chosen me
pollarded I show my wounds shamelessly,
my growth is curtailed
I must germinate once more
capture light in my branches
find my voice again when the wind contradicts me

Steven Van Der Heyden
Preface

Special thanks to Trui, my wife and Juul and Siel, my children who helped me through tough times when the combination between a family life, a busy stressful job, rebuilding our house and writing a book were extremely energy-consuming. Thanks for the support, the belief that this book would succeed and the comprehension that writing this book simply had to be done.

This book is the result of a joint effort of the whole Little Owl community, the multitude of volunteers and Little Owl enthusiasts throughout its distribution range. It was very comforting as author to have access to all those data and insights that were collected over decades with the utmost dedication. Hopefully these volunteers, professionals and not least the professional volunteers enjoy reading this book and realizing that this book would never have been possible without their continuous efforts and willingness to contribute their findings for the greater interest. It was an honor to sense the belief that this book would act as a lever for all their work and dedication.

Last but not least I wish to thank Ronald, David and Joris for their remarkable effort in making this book a success. Jean-Claude Génot, who retired to have more time to enjoy playing with his grandchildren nowadays, was so kind to write the Foreword and stimulated to make the update of this volume a real success. This book would never have been possible without our very intense co-operation and the willingness of all of us to deliver a piece of art that the Little Owl deserves.

Dries Van Nieuwenhuyse
This book holds plenty of insights that were obtained from the Zuidoost-Achterhoek research area in the Netherlands. This body of knowledge is the result of a unique cooperation with Pascal Stroeken who should be mentioned explicitly. As a team we managed to collect this unique wealth of data and insights that this research has yielded. Without our 35-year-old close friendship and the cooperation between us, this information would never have been collected in this way. The number of hours spent together in the field are innumerable. The same applies to the inspiring exchanges of views on almost all aspects that are discussed in this book. Without Pascal's meticulous "accounting," many results – especially in the Breeding chapter – could not have been presented in this way.

Ronald van Harxen

The Little Owl is truly an international species whose conservation and cultural impacts have reached far beyond its actual distribution. What an honor and wonderful opportunity it has been to work with Dries, Ronald and Joris on this book, and to bring together our collective insights and skill sets about owls. I sincerely appreciate the caring and thoughtful efforts of all of the people that have worked with the Little Owl, sharing their publications and perspectives, assessments and analysis, and amazing societal insights. I would also like to dedicate this book to the members of the Global Owl Project. My life has become richer through our shared communications, explorations, addiction to owls and the friendship I have had with you over the years. It is upon this collective foundation that our book was possible. Thank you so very much.

David H. Johnson

Seeing my subjects in their natural habitat is often the very first step in the making of my illustrations. Keeping a nature journal with field sketches helps me get familiar with the character of the species and makes it easier to capture its essence in the final illustration. Looking through a spotting scope I make (visual) notes of the animals I'm studying. Travelling was a bit hard during the pandemic, but I was able to observe Little Owls close to home in Belgium, Cyprus (definitely not Athene noctua lilith!) and Spain in the preparation of the book. Luckily, Dries was also able to provide additional pictures of all the subspecies, including study skins. He was even able to get footage of the mysterious spilogastra and somaliensis.

As individual differences are often bigger than the differences between subspecies it took lots of research and studying to represent the discriminative plumage of each subspecies. More than any previous assignment I did, the habitat of these plates was very important, visualizing the environment in which the owls thrive.

I would like to thank Dries, Ronald and David for their excellent guidance and feedback during the making of the illustrations. I would also like to thank my partner Linde, and my family for their patience and critique. Special thanks to Raf Beyers, Eddie Schild, Niels Schild and Anders Gray for sharing their knowledge.
Preface

Figure P.1 Fieldwork by the artist in Edegem, Belgium.

The illustrations in this book are a combination of graphite sketches and digital illustrations. Color and details are added on the computer using a graphic tablet. To see more on my workflow, visit my website, jorisderaedt.com or follow me on Instagram; @jorisderaedt.

Joris De Raedt
Acknowledgements

This book has many mothers and fathers, it shows our global Little Owl community at its best. The idea of this update emerged during the Nieuwvliet symposium in 2015 that was held at the Belgian–Dutch border. Crossing borders has always been easy for people in the Low Countries due to their very tiny size. This did not prevent their inhabitants from playing a unifying role across Europe and even beyond. Our Dutch language that we share also forces us to speak a broad range of foreign languages, which is also crucial to capture plenty of gray literature and sometimes very valuable insights that never end up in peer-reviewed journals.

So it is no surprise that we are indebted to many people, hopefully we are excused for all those that were forgotten in this overview. In the first place we want to thank several thousands of Little Owl enthusiasts that are active in conservation, education, study, data organization and standardization, publication, ... It is only through this unique co-operation that projects such as Little Owl 2.0 can be successful.

A significant part of new insights in this book stems from camera observations ranging from old-fashioned video recordings to online webcams that are followed by armies of volunteers that monitor each movement of breeding Little Owls, leading to unprecedented volumes of data, standardized and digitized, ready for analysis. Special thanks go to the webcam detectives of Beleef de Lente (Vogelbescherming Nederland) Marja Braams, Hansje Hardenberg, Anna Heijblok, Anjo Schouten, Ellen Verheul, Nel van de Vin, Trudy de Wit and Geert Sterringa (co-ordination) who unravelled and digitized hours of behavior that were never seen before.

The advantage of a second edition of this volume was the trustworthiness and the unconditional co-operation of crucial multinational and standardized initiatives of Little Owl data collection for ringing, distribution, population numbers and voice recognition. We are highly indebted to Mark Balman (BirdLife International), Dorian Moss (EURING), Verena Keller (EBCC) and Sergi Herrando (EBCC) for putting all recent available data at our disposal for advanced large-scale analysis. We were lucky in our search for updated high-quality data by different simultaneous initiatives that were converging, e.g., Article 12 of the Bird Directive of the European Union (European Environment Agency) yielded detailed distribution data at the 10 km scale for all EU member states (luckily still including the UK). The European Breeding Bird Atlas (EBBA2) of the European Bird Census Council covered continental Europe up to the Ural at the 50 km level. More detailed information was obtained by EURING revealing unique dispersion, fecundity and mortality insights. Zooming out to the

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global range of the species was enabled by the Macaulay Library – The Cornell Lab of Ornithology – at Cornell University that opened Pandora’s Chapter 4, Morphology and Body Characteristics, outside Europe, allowing virtual travel and the opportunity to see the Little Owl in all its diversity and very accurately behind a computer screen. Xeno-canto allowed us to use hours of geocoded sound recordings. Geocoded occurrence data for Little Owls were available from the GBIF – Global Biodiversity Information Facility. We believe that by using all the available data from those organizations, we were not only realizing our objectives, but also theirs, i.e., collect, standardize, analyze and disseminate insights and knowledge of species for the purpose of their long-term conservation. We hope we have made our contribution through the publication of this volume and are very grateful for the trust they had in us.

Literature is crucial in such a huge project. We are specially endebted to Alan Sieradzki, Bruce G. Marcot, Al Vrezec, Anna Heijblok, Lex la Crois, Line Holm Andersen, Lars Bo Jacobens, Gianpiero Calvi, Jevgeni Shergalin, Grzegorz Grzywaczewski and Frank Schram for helping us out with a variety of aspects that are related to tracing, collecting, scanning and organizing literature data. Al Vrezec shared his much appreciated views on taxonomic and bibliographic challenges related to Scopoli and Little Owls.

We are highly endebted to Irene Pellegrino who was so kind as to make all pictures of Little Owl skins available to us as the raw material for the illustrations. Koen Aeyels was kind enough to help us out with the maps.

We are delighted with the poem by Steven Van Der Heyden who also created an English version for this project. The real-life weathered or Corten Steel version of the poem is 170 cm tall and can be enjoyed in Herzele, Flanders.

Special thanks to Norbert Lefranc and Martin Grüebler for their advice and support for this second edition and to Alan Sieradzki for going through the final manuscript and turning it into real English. The next steps in the creation of this book were in the hands of the production team at Cambridge University Press. We are grateful for the continuous effort and belief in this project by Megan Keirnan, Aleksandra Serocka and our content manager, Jenny van de Meijden and copy-editor Jo Tyszka alike.

Crucial input of Little Owl insights were obtained from Anita van Dooren, Christien Hermens, Geco Visscher, Henk Wanders, Ruud Leblanc, Philippe Smets, Ricardo Tomé, Simon Birrer, Guido Desmaret, Magnus Robb, Michael EXO, Koen Van den Bergh, Reuven Yosef, Luis Reino, Boris Nikolov, Grzegorz Grzywaczewski, Rottraut Ille, Hubertus Illner and the many volunteers of Natuurpunt Herzele and beyond.

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This project was unique in its form due to the fact that crowd funding was organized to finance the illustrations. Two centerfolds, 22 unique plates and 32 chapter logos by Joris De Raedt could be sponsored and magnificent gift cards purchased (Figure 8.7).

Theo Boudewijn co-ordinated fundraising in the Netherlands, Trui Mortier in Flanders succeeding in a joint effort to close the financial gap. Obviously, we want to specially thank our sponsors for their generous support and belief in this project.

**Double Plate:** Vogelbescherming Nederland, Uilenwerkgroep Waasland.

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