

Foreword

Abundance estimation of animals is considered a fundamental tenet for both empirical and applied research. Critical answers relating to topics from evolution of animal behavior to species conservation status are based at least partially on knowing how many individuals there are in an area or population. Ironically, despite decades of realization of the need for reliable abundance estimation we have seen only recently (last 20 years) an explosion of research assessing the relative value and theory of estimation techniques, assumptions, and mathematics. The old adage of “keep it simple stupid,” becomes a bit more like “ignorance is bliss.” Fundamental techniques, such as mark-recapture and related techniques, which have been around for a very long time, now have received much needed evaluation and updating. As a result, the underlying math required to develop estimations has become far more complex and difficult for many field biologists to master.

Over the years a number of important treatises on these techniques and their application have been released. Most notable is what many of us consider the “bible of abundance estimation,” Williams et al. (2002). For those of us involved in training future conservation scientists at universities we consider that book is fundamental, but mathematically beyond almost all our undergraduates and many graduate students creating a need for a bit more user-friendly versions. Several subsequent volumes directed at various levels of experience and expertise have been released, including one I authored with Mike Conroy in 2011. However, there has been still a gap in getting students or field biologist’s in the door of understanding the basics and philosophy of abundance estimation.

The authors of this Primer have set out to create a way into the world of animal abundance estimation for those who are not mathematicians, but are instead field biologists who need to properly apply techniques and analyses of their data. I have known Larkin and George for many years and both are highly dedicated field researchers, but more importantly in undertaking this endeavor they are showing their true colors in being even better teachers.

The best techniques and analyses in the world are of no use if those who need them the most lack the resources to apply them in fundamentally sound ways. By providing a simple, clear, and concise description of the foundations of mark-recapture theory and application, Larkin and George provide a place to start and important tools to aspiring biologists as they apply abundance estimation to their particular research problems. In the tradition of education first, Larkin and George are providing their intellectual property to those who need it for free. I recommend that those of you who use this book thank them by providing feedback to them to help make this a living rather than static product.

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