



***Petrels Night and Day* (2008), by Magnus Robb, Killian Mullarney, and The Sound Approach.** The Sound Approach, Poole <soundapproach.co.uk>. 300 pages, 18 color plates, numerous color photos and sonograms, and 2 CDs. 34.95 plus postage (hardcover).

It's possible you've heard of Scopoli's Shearwater, but how about Grant's Storm-Petrel and Barolo's Shearwater? Believe it or not, all three have occurred in North America and you may well have seen one or more of these "new" species. But what are they, and how do you identify them? Petrels (used hereafter in the broad sense) mainly use sound for species recognition, and they do so largely at night; thus, they are basically the pelagic equivalents of owls and nightjars. Like nocturnal landbirds, more and more species of nocturnal seabirds are being recognized on the basis of their vocalizations. Ongoing genetic studies support the distinctiveness of many cryptic species of petrels, and this book weaves together the scientific literature and the field studies of the authors into a highly educational and often entertaining tapestry of words, pictures, and sonograms about some of the most poorly known of all birds.

Largely through vocalizations, *Petrels Night and Day* explores the identification and taxonomy of the 21 species of petrels (including shearwaters and storm-petrels) of the northeastern At-

lantic, with an emphasis on species breeding in the region. Two CDs with more than 120 high-quality recordings accompany the book, which is richly illustrated with color photos, sonograms, and maps, plus some fine plates painted by Killian Mullarney, one of the world's top bird illustrators. Magnus Robb, a Scot who until recently lived in The Netherlands, is a musical composer and avid bird sound recordist whose ability to hear, interpret, and articulate sound differences may be unequalled; Mark Constantine and Arnoud van den Berg round out The Sound Approach team. Among them they have produced a groundbreaking work.

The book is structured as 12 chapters, each covering a species or group of species, starting with gadfly petrels and ending with storm-petrels. The species accounts outline the present status and distribution of each species, and they often review its history with interesting tidbits about its discovery. Discussions and speculations about ecology, biogeography, and fossil species in the region pop up with regularity to provide food for thought. The trials and tribulations of the authors on their various adventures to record and photograph different species (from Iceland and the Mediterranean to Korea) are recounted in a personal style that is a refreshing change from the castrated, statistics-laden "language" that pervades so much scientific literature these days. Robb's writing style is passionate yet easygoing, at times humorous and even poetic. The female Cory's Shearwater (p. 56) thus sounds "like a chain smoker with a terrible hangover," and Yelkouan Shearwaters (p. 141) sound "for all the world, like great bellows stoking the fires of hell." A little extreme? Well, listen to the CDs and see if you could describe them better.

The heart of each account focuses on vocalizations, with tips on what to lis-

ten for and how to pick out differences. Numerous sonograms are included, cross-referenced to tracks and times on the CDs, with helpful color-coding to illustrate different sections of a call, or to distinguish males (blue) from females (red) and begging young (green). In general, the calls of male shearwaters and storm-petrels tend to be higher and longer than female calls. The differences may sometimes sound subtle (to us, if not to the birds), but the text patiently explains what to listen for, and the sonograms are often annotated with arrows and comments that draw attention to differences. Petrel vocalizations range from the eerie wailing moans of the gadfly petrels and the gruff, dog-like barks of Bulwer's Petrel to the choking shrieks of Cory's Shearwaters and the purring rattles of storm-petrels. The book is worth getting just to put on headphones and lose yourself in a world of birds that you may never have imagined existed. There are, alas, no recordings of Wilson's Storm-Petrel, a species heard commonly off North Carolina; its calls are described in the text of the book, though. Also, the voice of White-faced Storm-Petrel is not as well represented as for most other species in *Petrels Night and Day*.

In most cases, several examples of a call are provided so that you can develop an ear for each species' rhythm and pitch, and often for the obvious sex differences—and then go on to hear how the next species differs. That said, few of us have ears comparable to those of the authors, and it would have been nice to have recordings (and sonograms) of similar species together for direct comparison, such as the chatter calls of males (or females) of all four members of the Band-rumped Storm-Petrel complex (see below), or of British and Mediterranean Storm-Petrels. Perhaps in another edition this could be accom-

plished at the end of the second CD, even using recordings already on the CDs. At least for me, the ability to make direct comparison allows differences to be appreciated more easily than by whipping back and forth between pages and tracks. Something else I would have liked is a simple listing of the tracks on each CD, perhaps as an appendix. That way, if you're listening to the CDs you can simply check the list, rather than look through the whole book to find what you're listening to.

In several cases, Robb has listened to numerous examples of calls and he offers comments on his preliminary analyses about frequency differences or the number of notes, such as with the enigmatic Menorcan Shearwater. But don't worry, the book has no tables or statistics.

Tips on at-sea identification are also included, and there is a beautiful color plate for most species (Swinhoe's Storm-Petrel doesn't get a plate, but there are six color photos of it), featuring images of birds in flight and at rest on the sea, with pointers to particular field marks. Numerous color photos of birds at sea, birds on land at night, places, habitats, and people are scattered liberally throughout and contribute to the attractive presentation.

So what are some of these new species? Well, if you thought telling Fea's Petrel from Zino's Petrel might be a problem, then throw Desertas Petrel into the mix. Desertas looks like Fea's but averages bigger-billed, and it breeds in the Madeiran archipelago on an island close to that on which Zino's breeds. Desertas thus looks more different from Zino's than does Fea's, but Fea's and Zino's sound more similar to each other than either does to Desertas!

Cory's Shearwater is split into Atlantic-breeding Cory's and Mediterranean-breeding Scopoli's. Interesting-

ly, Scopoli's sounds more like Cape Verde Shearwater than it does Cory's, which mirrors the relationships suggested by genetics.

If you've been keeping up on seabird taxonomy, you'll know that the British Ornithologists' Union (but not the AOU) has recognized Macaronesian Shearwater as a species; it used to be "Little Shearwater" until a well-reasoned paper in 2004 by Jeremy J. Austin and coauthors (*Auk* 121: 847–864) blew apart the myth of traditional taxonomic views concerning Little and Audubon's Shearwaters. However, Macaronesian Shearwater comprises two very different taxa: Barolo's Shearwater (which resembles Little Shearwater, and which has been recorded casually off the East Coast) and Boyd's Shearwater (which resembles Audubon's Shearwater so closely that nobody knows how to tell them apart at sea). Robb and colleagues take the realistic view that Barolo's and Boyd's are separate species, and here you can listen to their voices (which are quite different) and judge for yourself.

Storm-petrels get a bit of a shake-up as well. You may have heard about the possibility that two species of "Band-rumped" Storm-Petrel breed at different seasons on the Azores, but that's only the tip of the iceberg. Robb and colleagues recognize four species of "Band-rumped" as breeding in the eastern Atlantic, all readily distinguished by voice. And additional populations of "Band-rumped" in the tropical Atlantic, the Galapagos, Hawaii, and Japan comprise another 3–6 species. Which species occur in North American waters? Well, Grant's Storm-Petrel is likely the main one, but Cape Verde is also possible, and Madeiran and Monteiro's could also occur here! At-sea identification criteria for these cryptic species are essentially unknown, but Robb and colleagues offer

some preliminary ideas. For example, molt timing is one feature that may prove useful.

If you've been lucky enough to see European Storm-Petrel off the East Coast in recent years, you should know that it comprises two species: British Storm-Petrel and Mediterranean Storm-Petrel, which may not be distinguishable at sea!

There is "good news," too. Northern Fulmar, Manx Shearwater, and Leach's Storm-Petrel remain unchanged, although the book does mention that three distinct populations of "Leach's" in the Pacific may represent different species—and at least two of these occur in North American waters. And Black-capped Petrel likely comprises at least two species, as discussed in 2008 by Steve Howell and Brian Patteson (*Alula* 14:70–83), even though the breeding grounds for one of them remain unknown. Thus, tubenoses don't just represent birding frontiers, they represent frontiers of taxonomy as well.

However, for taxonomic committees to make decisions, it is probably not enough to know that Barolo's and Boyd's Shearwaters look different, sound different, and behave differently at sea. Some poor sod will have to crunch a bunch of numbers to painfully elaborate the obvious. Seabird taxonomy (and even at-sea identification) has left the academics behind, with Northern Buller's Albatross (also known unhelpfully as Pacific Albatross) being a widely accepted taxon that has yet to be formally described. For the species treated by Robb and colleagues, a description of Monteiro's Storm-Petrel has just appeared in the *Ibis*, but Grant's Storm-Petrel has not been named formally.

I found only a few errors. "Maritime States of Canada" (p. 223) do not exist (they are provinces), and "Bourne

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(1990)” is mentioned on p. 274 but does not appear in the list of references. Knowing all of the literature in this dynamic field is impossible, but the authors have done a good job tracking down older and more obscure references as well as keeping up with the recent stream of genetic studies. The 2007 paper by Andrea L. Smith and coauthors on Band-rumped Storm-Petrels worldwide (*Molecular Phylogenetics and Evolution* 43:755–773) likely missed the publication deadline. Oh, and when you open your copy, do so with care, as the CDs can slide off easily from their felt mounts on the inside of the front cover and roll into inaccessible places.

Petrels Night and Day ties birding and lab science together with modern-day adventure, history, and myth. It also offers cutting-edge information on the field identification and taxonomy of some wonderful birds. Of course, given that taxonomy may move more slowly than evolution within the AOU Committee on Classification and Nomenclature, you shouldn't hold your breath waiting for many of these species to be split “officially” in your lifetime. But the conservative inertia of committees shouldn't blind you to the reality of nature and its underappreciated diversity. So buy this book and marvel at another world, brought to life by Robb and his colleagues at The Sound Approach.

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SNHG is an international tour leader with WINGS, a Research Associate at PRBO Conservation Science, and a widely published author of articles and books about birds. Before *Petrels Night and Day* appeared, Howell thought he had seen all but seven of the world's tubenose species, but now he has more than ten to go!
