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6 **Book review**

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8 **Species Conservation. Lessons from Islands, edited by Jamieson A. Copsey, Simon A. Black,**
9 **J. J. Groombridge and Carl G. Jones 2018. Cambridge University Press. ISBN 978-0-521-**
10 **72819-5, xx + 378 pp., £32.99 (paperback)**

11
12 Islands are considered natural laboratories that offer the possibility of addressing complex problems
13 in a simplified context due to their isolation, well defined borders, small areas and reduced
14 diversity. For the same reasons, islands present certain phenomena in exacerbated forms, which
15 facilitates their study. It is well known that extinction rates are much higher on islands than on
16 mainlands and that the impact of alien species is particularly strong on island ecosystems. If, on one
17 hand, this has attracted the attention of conservationists on islands as a focus of urgent actions to be
18 taken for their conservation, on the other hand, exactly for this enhanced vulnerability, islands can
19 offer us many lessons. This book collects a series of essays on species conservation on islands, with
20 emphasis on the importance of alien species management, habitat restoration, and population
21 management.
22

23 The book can be ideally divided into two main sections: the first section (Chapters 1-5) is dedicated
24 mostly to the strictly scientific aspects of conservation, whereas the second section (Chapters 6-end)
25 is focused on more “practical” issues, such as project organization, socio-economic implications,
26 successes achieved, etc.
27

28 The first Chapter (J.A. Copsey and S.A. Black) presents a general introduction to island biology, the
29 conservation importance of islands, useful messages that islands can give us, and book organization.
30 The second Chapter (J.J. Groombridge, S.E.W. Green and S.T. Turvey) is dedicated to evolution on
31 islands. Islands are rich in endemic taxa and this chapter explains why. An important merit of this
32 chapter is its focus on the need of knowing the evolutionary history of island biotas to make
33 conservation programmes effective. Without sufficient evolutionary information we simply do not
34 see hidden diversity; for example, conservation programmes can fail if we do not use the
35 genetically most appropriate candidates in interbreeding actions to save the genetic diversity of
36 populations on the verge of extinction.
37

38 Chapter three (J.J. Groombridge, C. Raisin and P. Brekke) is dedicated to the genetic factors driving
39 decline in island populations, with a focus on how genetics should inform conservation decision-
40 making. This chapter may sound a bit technical, but the authors succeed in making the argument
41 accessible to people without a solid biological background. In a few points, reading can be obscured
42 by citations of approaches and concepts that are not explained. For example, in discussing the case
43 of Mauritius and Seychelles kestrels, the authors present results of posterior distribution of effective
44 population size obtained from Bayesian analysis, without explaining the method, which makes it
45 difficult to perfectly understand the relative figure. Similarly, for the Mauritius parakeet, they
46 present results of variation of global fixation index F_{st} without explaining what it is. But they are
47 very minor points. Actually, in my opinion, this chapter is an excellent summary of the principles of
48 population genetics in conservation biology.
49

50 The fourth Chapter (A. Tye, G. Key and J.A. Copsey) is dedicated to the impacts of invasive
51 species on island biotas. This is an excellent synthesis, full of worldwide examples, of both the

52 biodiversity and socio-economic impacts of invasive species, and the steps to invasion, with a focus
53 on the points at which we can best intervene to deal with the invasion. Chapter five (R.P. Young,
54 J.A. Jamieson, A. Copsey and S.T. Turvey) explains why it is important to know the ecological
55 history of declining species to set conservation decisions within a long-term context. Thus, this
56 chapter first illustrates how population histories can be reconstructed using fossil and
57 zooarcheological records, historical accounts, traditional and local knowledge, and genetic
58 approaches. Then, the chapter discusses how population changes can be monitored and how to
59 identify the main causes of decline.

60
61 Chapter six (S.A. Black) is dedicated to the organization of recovery projects. The Chapter provides
62 clear guidance (through theoretical discussions, examples, and reviews of methods), from project
63 planning, including indications on how to organize project governance, identifying and managing
64 the team and the stakeholders, to defining the objectives, goals, deliverables, and activities of the
65 project, to evaluating progress, adapting the plan to changing circumstances, and to evaluating the
66 outcomes of a completed project.

67
68 The seventh Chapter (J. Parkes) complements the fourth one, addressing what can be done to
69 contrast the impacts of invasive species (especially vertebrates) through the analysis of the
70 fundamental steps for effective eradication or sustained long-term control processes. These include:
71 (1) identifying and engaging key stakeholders, (2) defining prioritisation, selection and justification
72 of key points, and (3) evaluating project feasibility. The chapter also discusses in detail the “early
73 detection, rapid response” approach as the most appropriate management response to an exotic
74 species incursion before its establishment and spread, when choosing either eradication or sustained
75 control, and how to do them.

76
77 Chapter eight (S. A. Black) is linked to Chapter six, being a detailed discussion of the importance
78 of leadership in determining a project’s success. Here, the author explains the role of leadership,
79 management, people motivation, and working relationships in conservation projects, with emphasis
80 on the “system thinking” approach (in which leaders should optimize links between manager
81 behaviour, work rules, structure, decision-making, skills, and methods, so that the emphasis is not
82 on the leader as such, but on the effectiveness of the organization) as opposed to the traditional
83 “command and control” approach.

84
85 The ninth chapter (C.G. Jones, N.C. Cole, S. Canessa, A.L.M. Chauvenet, D.J. Fogell and J.G.
86 Ewen) uses experiences from New Zealand (translocation of New Zealand short-tailed bats and
87 supplementary feeding of New Zealand hihi), and Mauritius (rescue of Mauritius orange-tailed
88 skink from Asian musk shrew invasion and nest-box placement and hygiene for managing the
89 Mauritius parakeet) to exemplify the necessary steps of species recovery. The authors first illustrate
90 how, for a successful recovery, it is essential to have a clear definition of the objective and a
91 comparative analysis of alternative strategies to identify the best one. Then, they explain how to take
92 uncertainty into account.

93
94 Chapter ten (C.G. Jones and J.A. Copsey) is about ecosystem management and restoration, with
95 emphasis on eradication of invasive plants and animals, re-establishment of native plant-
96 communities, animal species reintroduction, including species introduction to replace the role of
97 extinct species-- a very controversial issue.

98
99 Chapter 11 (P.B. Butler, J.A. Copsey and C. Gradiner) is about the strategies to engage local island
100 communities, especially by changing human behaviour, with emphasis on the so-called “Rare
101 theory of change,” initially used by the RARE Center for Tropical Conservation to reverse the
102 decline of parrots on some Caribbean islands.

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The last, twelfth chapter (S. Black and J.A. Copsey) presents an application of Beckhard's organisational design model for conservation practice using examples discussed in the preceding chapters. The book also contains a Foreword by L. Durrell and Preface by J. A. Copsey, Undoubtedly, the editors and the authors of the various chapters must be congratulated for having produced a timely book that brings together, in a balanced way, scientific and socio-economic issues to provide practical guidance to anyone involved in species conservation on islands. However, in my view, the book treats species eradication as apodictic. First, the possible negative effects of eradication are only tangentially cited. In fact, we know that alien species can play important roles, for example by replacing those of native species no longer present in a given ecosystem, and their eradication can have negative consequences on ecosystem functioning, especially in the most human-altered habitats. For example, alien plants may constitute important food resources for many animals, and their eradication may represent a serious threat for them, if their function cannot be adequately replaced by native vegetation. Second, the book overlooks important ethical problems in eradication programmes. These problems should be carefully evaluated and addressed, if we want to engage local communities and to have people's support. While plant eradication typically does not raise ethical problems, eradicating mammals can be much more problematic. For example, the book stresses the impacts of cats on island native species and the benefits of cat eradication, but killing cats raises important ethical questions. Basically, since the most successful outcomes have been achieved only on small or very small islands, with confined and small cat populations, one might ask if we are really forced to kill them, or if they should be removed in some bloodless way. This might be much more expensive, but might receive stronger support from people; so the choice is ethical and political, not scientific. Moreover, a blind application of eradication procedures that were successful on small islands to mainland contexts can be scientifically ill-founded and produce public opposition. For example, the Australian plan of eradication of feral cats is of controversial utility and raised opposition (e.g., Lynn, 2015; Doeherty et al., 2019). Perhaps, a more critical evaluation of these problems should have been included in this book.

Doherty, T.S., Driscoll, D.A., Nimmo, D.G., Ritchie, E.G., Spencer, R.J. 2019. Conservation or politics? Australia's target to kill 2 million cats. *Conserv. Lett.* E12633.

Lynn, W. 2015. Australia's war on feral cats: shaky science, missing ethics. *The conversation*. Available at: <http://theconversation.com/australias-war-on-feral-cats-shaky-science-missing-ethics-47444>

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