

Saving a species threatened by trade: a network study of Bali starling *Leucopsar rothschildi* conservation

PAUL R. JEPSON

Abstract Saving species from extinction is a central tenet of conservation, yet success in this endeavour remains unpredictable and elusive, especially where wildlife trade is involved. Influential conservation policy actors operating internationally advocate strong regulatory and enforcement approaches to governance of wildlife trade. However, a broad body of evidence suggests that in some situations positive incentives for sustainable use may achieve better conservation outcomes. This analysis of efforts over 3 decades to avoid the extinction of the Bali starling *Leucopsar rothschildi* draws on network perspectives from environmental governance and geography, and shows how an international project adopting traditional enforcement approaches generated a ‘prestige of ownership’ dynamic among local elites. This placed trade in Bali starlings above the enforcement competencies of the relevant government authority, leading to the demise of the species. Subsequently, two separate Indonesian initiatives created spaces of regulatory flexibility and embraced traits of the starling’s phenotype to construct identities for the species suited to the local context. This enrolled a wider range of stakeholders in the conservation of the species, including bird-keeping elites, and led to significant successes in restoring captive and free-flying populations. This case study highlights the potential of conservation networks that involve non-establishment personnel and, while recognizing the appeal of generic enforcement approaches to politicians, funders and the urban public, it adds to an increasing body of evidence that suggests top-down prescriptive conservation frameworks may undermine the ability of situated conservationists to develop interventions appropriate to their political and cultural realities.

Keywords Bali starling, conservation effectiveness, governance, Indonesia, *Leucopsar rothschildi*, networks, species conservation, wildlife trade

Introduction

Saving species from extinction is a central tenet of conservation, yet despite transformations in conservation science, policy, resources and public awareness, success in this endeavour remains unpredictable and elusive. This seems to be particularly so where wildlife trade is involved, as shown by high-profile policy and media campaigns in response to the plight of several iconic taxa, notably elephants, rhinoceros, tigers and pangolins (e.g. United for Wildlife, 2014). Difficulties in saving threatened species may be more systemic. For instance, in a review of 168 bird species categorized as Critically Endangered on the IUCN Red List (IUCN, 2014), Butchart et al. (2006) identified only 16 for which interventions had prevented their extinction. This case study of conservation of the Bali starling *Leucopsar rothschildi* in Indonesia over 3 decades (1978–2009) aims to develop earlier contributions that I and co-authors have made to the debate about the efficacy of strategies to govern wildlife trade, and to theory development in the conservation of threatened species.

The 2014 London Conference on Illegal Wildlife Trade brought attention to the pressures facing wildlife with a market value. A focus of the conference was the alignment of wildlife trade with security agendas and calls to class wildlife crime as a ‘serious crime’ (London Conference Declaration, 2014). However, the last significant review of wildlife trade and regulation found that regulatory systems frequently fail and the conceptual or empirical foundations of such strategies are often faulty or untested (Oldfield, 2003). Cooney & Jepson (2006) questioned the efficacy of generic trade bans and argued for more situated governance approaches that adopt either regulation or incentive-based approaches or a blend of the two, depending on the characteristics of the species concerned and the context of their conservation. Challender & MacMillan (2014), writing from an economics perspective, similarly outlined the risks associated with reducing ‘the complex social, cultural and economic nature of wildlife trade into a simple law enforcement problem’.

Such perspectives allude to transformations in political systems, in particular the gradual change from centralized, hierarchically organized systems that govern by means of law, rule and order, to more horizontally organized, fragmented and complex systems of governance that govern

PAUL JEPSON School of Geography and the Environment, University of Oxford, Dyson Perrins Building, South Parks Road, Oxford OX1 3QY, UK
E-mail paul.jepson@ouce.ox.ac.uk

Received 20 September 2014. Revision requested 4 November 2014.
Accepted 25 November 2014. First published online 18 May 2015.

through a combination of self-regulation, market and other incentives interacting with law (Sørensen & Torfing, 2007). Network perspectives from within political science, policy studies and geography respond to this move towards network governance. The first two disciplines tend to adopt institutional perspectives and focus on the structure, spatial organization and impact of governance networks (e.g. Betsill & Bulkeley, 2007), the role of networks in transnational rule-making (e.g. Duffy, 2006; Djelic & Sahlin-Andersson, 2008), their efficacy in natural resource management (e.g. Gibbs, 2008), and the implications of network governance for democratic theory (e.g. Sørensen & Torfing, 2007).

Post-humanist perspectives in geography offer useful conceptual insights for the study of conservation networks (Jepson et al., 2011a). Of particular relevance to this study are (1) understandings of agency (i.e. the capacity to produce a phenomenon or modify a state of affairs) as an emergent property of relations rather than the property of particular human actors (individuals or organizations), (2) the logic that if agency is relational any entity in a network is conceivably an actor because the relations in which an entity is embedded can imbue it with the capacity to influence unfolding events (act) and, (3) that actors (including species) achieve their identity as a consequence of the relations in which they reside (Latour, 2005; Blok, 2007). These insights identify a potential weakness in the design of interventions for threatened species, namely the tendency of lead conservation practitioners to prescribe an identity for a species that reflects and reinforces their world-views, agendas and/or technologies of conservation, and the risk that this identity might be in tension with the identities of the species in the cultural context of its conservation and amongst local conservation networks (cf. Callon, 1986).

From a perspective of developing theory about the conservation of threatened species Ladle & Jepson (2008) suggested that contemporary practice is informed by the small population and declining population paradigms. These posit that declining populations are increasingly subjected to biotic and abiotic feedback loops that lead to an extinction vortex (Gilpin & Soulé, 1986), and that population declines have identifiable causes that can be diffused by considered interventions (Caughley, 1994). We argued that this theorization lacks consideration of other important causal agents, namely the behaviour of conservation organizations and other stakeholders, and the identities of the threatened species in their cultural context. Network perspectives offer a means to investigate these and other interactions, and are particularly suited to the analysis of species conservation. This is because conservation has probably always been enacted 'with and through networks' (sensu Rhodes, 2007), given its social movement heritage and focus on governing both human and non-human populations.

This case study presents a history of conservation of the Bali starling and its iconic status, as the context for the following accounts of the participants and logics involved in the formation and performance of four conservation networks. I then consider insights from these accounts within the framework of debates about governance of wildlife trade and broader discussions about how best to save Critically Endangered species.

Methods

This study is informed by four information sources: (1) recollections of my direct involvement in conservation activities for the Bali starling (whilst Head of the BirdLife International–Indonesia Programme 1991–1997) that were prompted and checked through review of project reports and the draft of an article I prepared in 1998, (2) a review of literature on the Bali starling, (3) an applied study (2005–2008) on the culture of bird-keeping in Java and Bali (Jepson & Ladle, 2009; Jepson et al., 2011b), and (4) 16 key-informant interviews conducted during June–November 2009 with people directly involved in the three conservation initiatives for the Bali starling. Respondents were identified from a combination of personal knowledge and so-called snowballing (i.e. persons identified by respondents). Interviews were conducted in person (Indonesia and UK) or by telephone (USA and Netherlands) in English or a mix of English and Bahasa Indonesia. Topics explored included the basis for the popularity of the species in Indonesia, interviewees' involvement in the project(s), and their opinions on the world-views and techniques of various stakeholders. Interviews were recorded with the permission of the interviewees, and transcribed. Data analysis and writing commenced simultaneously and this informed the content of some interviews. Interviews were supplemented with site visits and informal conversations at breeding and release facilities in Bali Barat National Park and Nusa Penida island during August 2009. To ensure anonymity, quotes are attributed to one of three categories of interviewee, namely Government (G), Zoo (Z) and NGO (N), and identified by category and interview number.

Results

A short history of Bali starling conservation

The Bali starling is endemic to the island of Bali, Indonesia, and was discovered by western science relatively recently, in 1911. It has a white body and crest and black tips to the wings and tail. It was afforded legal protection in Indonesia in 1958 and included in the 1977 Red Data Book (King, 1978–1979). Mass export of Bali starlings to Europe and the USA during the 1960s and 1970s prompted inclusion of the species on

Appendix 1 of CITES (2014) when Indonesia ratified the Convention in 1978.

Counts of the wild population revealed steady declines from 300–400 birds in 1976–1977 to 125–180 birds in 1984 and to only 13 or 14 individuals in 1990. After a brief recovery to 45 individuals in 1993 the population declined to 15 by 2000 (van Balen & Gepak, 1994) and the findings of this study suggest that the species became extinct in the wild in 2006. In contrast, zoo populations of the species in Europe (700) and the USA (600) reached saturation point in the late 1980s (BirdLife International, 2001).

In 1983 the International Council for Bird Preservation (since 1991 BirdLife International) and the Indonesian Government's Directorate General for Forest Protection and Nature Conservation (PHKA) commenced a collaborative programme to protect and restore the last remaining wild population of the species, located in Bali Barat National Park. The first phase (1983–1987) involved a study of the status and ecology of the population, and production of a 5-year recovery programme. Concurrently, the American Association of Zoological Parks and Aquaria (since 1994 the Association of Zoos and Aquariums) developed and adopted (in 1985) a species survival plan for the Bali starling (Earnhardt et al., 2009). In 1987 these parties and the Jersey Wildlife and Preservation Trust embarked on a 5-year project (phase III) with objectives relating to protection and monitoring, restocking the wild population, establishing captive breeding in Indonesia, and raising public awareness. The breeding component involved three Indonesian zoos: Surabaya Zoo in East Java, and Taman Safari and Taman Burung in West Java (Collins et al., 1998). The Bali Barat National Park authority was unable to control trapping of Bali starlings, and BirdLife donors lost confidence in the project. In 1994 BirdLife withdrew from direct involvement in the project and the international effort dwindled c. 2000 (BirdLife International, 2001). Subsequently, in 2003 Taman Safari and Pelestari Burung Indonesia (a national bird-keeper association) formed the Association for Conservation of the Bali Starling (Asosiasi Pelestari Curik Bali) to saturate the market with locally bred Bali starlings and provide a surplus of birds for release. In 2005 the Directorate General for Forest Protection and Nature Conservation delegated management authority of the Indonesian ex situ population (i.e. those held in captivity in Indonesia) to this association, which by 2011 increased the population of Bali starlings to > 1,000 individuals kept by 400 citizen breeders.

In 1999 the Bali-based Begawan Giri Foundation commenced a breeding programme for the Bali starling, at its resort near Ubud, on the recommendation of the Balinese NGO Friends of the National Park Foundation (FNPF, independent of Bali Barat National Park). Since 2004, FNPF had been working with customary leaders on the island of Nusa Penida to create a sanctuary for the release of birds

in Indonesian wildlife rescue centres. In 2006 they began releasing Bali starlings on the island (Dijkman, 2007), and a free-flying population with third-generation offspring was established in 2009.

The basis of the Bali starling's iconic status

Indonesian respondents suggest that the Bali starling's iconic status was constructed through the interplay of several factors: the rarity of white birds, and their association with the concepts of peace, purity, spirituality and royalty; the fact that the species is endemic to Bali, which is popularly known as the island of the Gods; and the interest taken in the species by Sukarno, Indonesia's former president and independence leader (who probably requested protected status for the species in 1958). Furthermore, the species' beauty reinforced western constructs of Bali as an exotic tropical paradise, which date back to the 1930s, when Bali became a popular destination for western artists, writers and media moguls (Shavit, 2006).

Formative networks of Bali starling conservation

The late Haji Mohamed Kamil Oseman, a senior Indonesian oil-executive, bird lover and founder of the Indonesian section of the International Council for Bird Preservation, was the key node in the first Bali starling conservation network. In 1978 he received a letter from the International Council for Bird Preservation secretariat in Washington (initiated by the Dutch section of the organization) informing him of concerns regarding the survival prospects of the starling, and requesting his intervention. Oseman enlisted a leading U.S. zoo curator in the cause during the translocation of confiscated palm cockatoos *Probosciger aterrimus* from the USA to Indonesia in 1981. This event, which occurred soon after Indonesia ratified CITES, generated significant media interest in Jakarta, and Oseman and the zoo curator exploited this to gain access to senior officials in the Directorate General for Forest Protection and Nature Conservation, and bring the plight of the Bali starling to their attention.

By 1980 the starling was a popular exhibit in zoos in the USA and Europe because of its exotic associations, beautiful plumage, lively behaviour and simple husbandry requirements. Many U.S. zoos had acquired specimens in the early 1970s 'but no one thought or realized what their status was in the wild' (Interview Z1, 18 September 2009). Meanwhile, the American Association of Zoological Parks and Aquaria sought to strengthen the public legitimacy and scientific credibility of zoos by presenting them as institutes developing science-based technologies for conservation breeding and reintroduction (Conway, 1980; Lovejoy, 1980). The plight of the Bali starling aligned with

these strategic goals: it was the ideal species for which to develop, test and establish new technologies of studbook management; it was easy to breed and most zoos already kept the species, and thus 'for a relatively small expenditure. . . they could become part of this international programme' (Interview Z1, 18 September 2009).

In the early 1980s the International Council for Bird Preservation appointed its first two paid staff members. The Council's aim was to become the world authority on the status and conservation of birds through systematic assessment of the threat status of every bird species. According to its first programme manager, the Bali starling conservation project offered a project the Dutch section of the International Council for Bird Preservation could adopt, and the opportunity to establish a base in Indonesia, from which to build knowledge of the diverse and little-known avifauna of the archipelago.

In 1983 Oseman facilitated a collaborative project for conservation of the Bali starling, involving the Directorate General for Forest Protection and Nature Conservation and the International Council for Bird Preservation. This was in line with the Suharto regime's (1967–1997) use of conservation policy as a means to generate a positive international profile for Indonesia. In 1980 Indonesia hosted the IUCN World Parks Congress in Bali, where Minister of Forestry, Soejaro, declared Indonesia's first 20 national parks, including the Bali Barat National Park. Thus an international species survival project in Bali made both political and conservation sense and the Bali starling became the 'talked about' bird among the Indonesian elite with an interest in wildlife. Ownership of rare wildlife has long been a mark of status amongst the Indonesian army, police and bureaucracy, and until the 1990s it was common practice to give wildlife as gifts to superiors as a demonstration of gratitude and loyalty. By the mid 1980s ownership of a Bali starling had come to signify that a person had taste and an international outlook, and was above the law because of his status within, or links to, the governing elite, his wealth, or both.

Indonesian respondents struggled to explain why prestige accrued from the illegal practice of owning a Bali starling. Responses suggested a dynamic of prestige whereby sharing knowledge of ownership signifies a bond of trust with the recipient of that knowledge, who accords the owner respect and admiration for their social status, as signified by their owning a Bali starling. A senior official of the Directorate General for Forest Protection and Nature Conservation argued that the desire among the elite to keep Bali starlings was also a consequence of a misunderstanding of the awareness messages communicated by the international project. These inadvertently generated a desire to own the species before it went extinct, and an attitude that it was better to keep the species in captivity rather than let it go extinct in the wild (Interview G2, 27 August 2009). A

demand for Bali starlings thus emerged, and was fulfilled by a powerful East Javan wildlife trade mafia, who trapped birds from the Bali Barat National Park. This study was unable to establish whether elite owners actively sourced the species or whether the starlings were given to them as gifts.

Tensions between the Ministry of Environment and the Ministry of Forestry were exacerbated prior to the 1992 Earth Summit in Rio de Janeiro. The former recognized the international kudos Indonesia could gain from its status as a mega-diverse country (McNeely et al., 1990) and accused the Ministry of Forestry of 'only ever cutting forests' (Interview G1, 15 July 2009). In an effort to resolve differences, Oseman and others facilitated a joint meeting that led to a decree establishing a national flora and fauna day and requiring all provinces to adopt a species mascot. Bali chose the Bali starling as its mascot, thus raising the profile of the species in Balinese culture and art and in the marketing of tourist facilities, including the Bali Hyatt Hotel and the Bali Bird Park (van Balen & Dirgayusa, 1993).

The international project

The three main participants in the international project for conservation of the Bali starling (the Association of Zoos and Aquariums, the International Council for Bird Preservation/BirdLife & the Directorate General for Forest Protection and Nature Conservation) problematized the plight of the Bali starling in accordance with their respective conservation perspectives and techniques. The zoo curators emphasized the small population size and concomitant risks of stochastic extinction and/or reduced fecundity as a result of in-breeding depression (e.g. Shaffer, 1981). From their perspective, to save the species it was essential to know and manage the gene lines of the ex situ and wild populations, increase the latter through reintroduction, and establish protocol to guard against disease. Ornithologists of the International Council for Bird Preservation approached the problem from a perspective that framed human-induced impacts on natural habitats as the primary threat to wild bird populations: the terms human occupation, habitat destruction, conversion, and encroachment featured prominently in their assessments (Vincent, 1966–1971; Collar et al., 1994; BirdLife International, 2001). Their response logic emphasized ecological research and monitoring to understand the effects of direct and indirect anthropogenic factors on the wild population as a basis for developing management solutions. The Directorate General for Forest Protection and Nature Conservation approached the issue from the resource management ethos of foresters. They regarded the starling as a natural resource to be secured in its environment, with the prospect of some utility function at a future date.

Among these diverse problematizations of the status of the Bali starling were points of contact and convergence

that produced the semblance of a partnership of complementary expertise. The combined resource-inventory practices of foresters and ornithologists yielded a standardized biannual census technique involving park rangers and maps of habitat in need of protection. The Association of Zoos and Aquariums transferred stud-book management technologies to the Indonesian zoo community and produced a release protocol with the ornithologists. The Directorate General for Forest Protection and Nature Conservation organized ranger patrols in the park, and the three parties collaborated on public awareness activities and releases of captive-bred birds. However, the resident ornithologists of the International Council for the Protection of Birds, and the Directorate General for Forest Protection and Nature Conservation considered captive breeding a second-choice option that was useful only if they were 'unable to support the species in its environment' (Interview N4, 26 August 2009). They considered the periodic visits by the Association of Zoos and Aquariums, which involved workshops on captive breeding and promotion of the Vortex software (Lacy, 1993), to require a disproportionate investment of project resources and distract from the core issues of park security and habitat management. From the perspective of the Association the resident ornithologists did not exert sufficient pressure on the authorities to improve security at Bali Barat National Park. The ornithologists considered this was beyond the power of the Directorate General for Forest Protection and Nature Conservation but did not fully understand why.

This failure of park enforcement led to the demise of the partnership after 8 years. A high-ranking respondent from the Directorate General explained the enforcement problem in terms of ministerial territories: 'outside a forest we are weak. . . we are foresters. . . going out of this domain is very difficult. . . because there are many high-ranking officials enjoying wildlife as private property'. He noted that 'most of the big stealing of Bali starling happened when the Park Director was away. . . and the Bali starling price was a hundred times their [a ranger's] monthly salary' (Interview G2, 27 August 2009); thus trappers could pay rangers to overlook their presence. In short, the transnational conservation partnership lacked influence within the networks of power and accommodation that emerged around the Bali starling's elite status.

In 1994 the Directorate General for Forest Protection and Nature Conservation acted independently to address the issue of elite ownership by introducing a policy dubbed the white-wash campaign, whereby owners were encouraged to exchange wild-caught Bali starlings for captive-bred American birds (legally a loan). The idea was to acquire genetically superior birds for the Indonesian captive-breeding programme and for the Directorate General and Ministry of Forestry to assert ownership of protected wildlife in captivity without antagonizing high-status owners. The policy

(which was also extended to other species) had limited uptake and was criticized by other conservationists as legalizing private ownership of threatened wildlife.

The Javanese association

Following the demise of the international project, some of the Indonesian participants established the Association for Conservation of the Bali Starling in 2003. This emerged from a network of journalists founded by Taman Safari in 1987 to improve the amount and quality of wildlife news reporting. At a meeting in 2003 Taman Safari and Pelestari Burung Indonesia highlighted a citizen association that had formed to breed straw-headed bulbuls *Pycnonotus zeylanicus*. Like the Bali starling, this species had been driven to extinction in Indonesia by trapping to supply local cage-bird markets. The journalists were inspired by the breeding success generated by the association's social learning model. They convened an informal meeting to explore the possibility of a similar initiative for the Bali starling, and invited the Directorate General for Forest Protection and Nature Conservation on the understanding that 'we don't talk about legal and illegal things' (Interview Z2, 17 July 2009).

Based on their local knowledge, journalists in the network generated the crucial statistic that 600 starlings were kept privately in 140 households in Java. Subsequently, Taman Safari and Pelestari Burung Indonesia personnel met several times with the Director General for Forest Protection and Nature Conservation and developed an agreement whereby the government would delegate to the Association for Conservation of the Bali Starling sole management authority for the Indonesian ex situ population of Bali starling for a trial period of 3 years.

The Association was formally established, with a board comprising representatives from Indonesian zoos, Pelestari Burung Indonesia, the network of journalists, and the Indonesian partners of WWF and BirdLife International. According to the head of Pelestari Burung Indonesia, the Association encouraged citizens to 'breed the birds because that will put birds into the market and the price will go down and by doing that the birds in Bali Barat National Park will be more secure'. He added 'You will never get anywhere if you keep forbidding people to participate . . . but of course you have to select carefully who can be trusted to participate' (Interview Z3, 15 July 2009).

The committee began with 10 invited starling owners who were known to be interested in breeding and conservation, including one who was already a successful breeder of Bali starlings. They organized training, and the loan and exchange of birds to create breeding pairs. The network expanded as other owners applied to join, motivated by the prospect of commercial gains and being part of a network involving high-status individuals that would buffer owners

from problems with the authorities. Within 3 years the Association doubled the captive population of Bali starlings on Java, to c. 1,000 birds. They transformed the Bali starling from a Critically Endangered species to a cage-bird whose market value and source of supply were commonly known. The price of a pair decreased from IDR 40 million (c. USD 4,500) to IDR 8–10 million (c. USD 900) and as a result the species lost its status in black market networks of wildlife supply.

As the number of breeders increased, the Association created two types of breeders: government-licensed commercial breeders (5–10 only), who agreed to participate in the studbook and (in principle) donate 20% of their productivity to the Directorate General for Forest Protection and Nature Conservation for release, and a larger number of quasi-legal, unlicensed breeders operating outside the studbook and selling birds certified as captive-bred to anyone willing to buy. In response to the success of the Association for Conservation of the Bali Starling the government decided to release a flock of Bali starlings into Bali Barat National Park to mark Indonesia's hosting of the United Nations Framework Convention on Climate Change in Bali in 2008 but commercial breeders were reluctant to give up their birds, because of the Park's reputation for lax security. The Association for Conservation of the Bali Starling, in partnership with three eco-resorts, thus devised a soft release solution, which involved creating release flocks that would stay within the security of a resort, by means of aviary cohorts and regular feeding of free-flying cohorts.

The Balinese initiative

Concurrent with the Javanese initiative a distinct Balinese approach emerged, led by Bayu Wirayudha, a charismatic Balinese veterinarian, conservationist and director of Friends of the National Parks Foundation. This approach brought together two existing conservation initiatives: a grassroots network of Indonesian conservationists, led by the national animal welfare organization ProFauna, and an initiative of the British owners of the Begawan Giri resort, who wanted to attract more birds to the hotel grounds. Friends of the National Parks Foundation identified Nusa Penida, an island close to Bali, as a suitable location for rescued animals to establish free-living populations. Seven of the 41 villages on the island already had customary laws protecting wild birds, in accordance with teaching within Hinduism concerning the sanctity of all life, and by 2006 all village councils had passed customary laws protecting birds. Thus the island became a bird sanctuary, and trapping of birds was eliminated.

The owners of Begawan Giri began a breeding programme for the Bali starling, with two pairs sourced from the UK, and by 2006 they had established a captive

population of 95 individuals. In 2004 the resort was sold and the new owners had no interest in the Bali starlings, and thus the birds were translocated to Nusa Penida in 2005 and prepared for release. This was supported by the pre-eminent traditional leader on the island, whose family had for generations managed the famous temple at Ped. He was seeking to develop tourism as a means to resist a casino development proposed by Jakarta-based investors, and hoped the Bali starling would enhance the image of the island. On 10 July 2006 25 starlings were released into coconut plantations around the temples of Ped and Batumadeg. Prior to release they were given as ceremonial offerings to the temples, thereby symbolically transferring ownership from the government to the spiritual and ceremonial institutions of the island, thus reinforcing the customary bird protection regulations.

Interviewed leaders of Friends of the National Parks Foundation identified a desire in Bali to assert a distinct Balinese identity in conservation of the Bali starling. One commented that 'if the Bali starling is Bali's mascot the Balinese should save it' and the people of Bali should be 'able to know it [their faunal symbol] and know it for free' (Interview N5, 4 August 2009). Bali Barat National Park was perceived as a Javanese administrative territory, and the failure of the international project had resulted in a lack of faith in establishment conservation. The proposed release of Bali starlings outside their known natural range and into perceived non-native habitat caused controversy in establishment conservation circles. The Indonesian Institute of Sciences and two leading Indonesian universities supported the plan to release Bali starlings outside their known natural range but officials of international bird conservation NGOs argued that the plan was 'irresponsible', 'against IUCN guidelines' and 'counter to the doctrine of conservation' (Interview Z4, 15 July 2009). They lobbied the Directorate General for Forest Protection and Nature Conservation in Jakarta, which informed their representative office in Bali that without approval from the central government the release would be illegal. In response Friends of the National Parks Foundation asked a prominent figure on Bali's arts scene, who was also a starling breeder, to facilitate a meeting with the Governor of Bali. The Governor supported the release of starlings and encouraged the heads of army and police to attend the release ceremony. The objections of external conservation authorities were further overruled when President Susilo Bambang Yudhoyono visited the Temple at Ped (which is believed to impart aura) and conducted a second ceremonial release of 12 starlings on 26 April 2007.

By 10 December 2007 64 starlings had been released, at four locations, and by 2009 third-generation offspring of these birds were flying free in agricultural habitats. In a July 2009 census by the Biology faculty of Udayana University at least 84 individuals were counted. In 2010

the original breeding stock was reclaimed by the Begawan Foundation, ending this phase of the Nusa Penida release programme.

Discussion

By adopting a network perspective this 30-year case study of Bali starling conservation adds depth and insight to standardized accounts of species endangerment (e.g. BirdLife International, 2001). The insights gained inform long-standing debates on different strategies to govern wildlife trade. In addition they suggest testable hypotheses for theory development in the conservation of threatened species.

Illegal trapping for the wildlife trade is the primary threat to the survival of the Bali starling in the wild, and government officials and conservation and animal welfare NGOs have long favoured a law-enforcement approach to address this threat. This study revealed that a traditional law enforcement approach was ineffective and contributed to the failure of an international conservation partnership because of the prestige of starling ownership among ruling and business elites who were above the enforcement competencies of the responsible government agency. Although efforts to elevate wildlife trade to a serious crime may address such prestige dynamics through increasing the risk of ownership by involving higher-level policing authorities, this proposition is untested, as is the assumption that governments possess the resources and political capital to extend strong enforcement beyond a small set of iconic species.

The Javanese and Balinese initiatives for conservation of the Bali starling have shown that effective, low-cost approaches can emerge in situations of regulatory flexibility where conservationists can use a combination of conservation techniques and local cultural resources. The agreement to suspend provisions under Indonesia's species protection law on a trial basis allowed the Association for Conservation of the Bali Starling to mobilize Java's bird breeders to supply Bali starlings commercially. This reduced the market price and prestige of ownership, making the supply of wild-caught birds financially unattractive for the crime syndicate involved. The Bali starling became an asset in other ways: new enterprise and livelihood options were generated for urban citizens, a release ceremony took place to mark Indonesia's hosting of a major environmental conference, and the starling was perceived as enhancing the visitor experience at eco-lodges.

In contrast, Friends of the National Park Foundation had to actively push back against protected species legislation and 'soft law' international guidelines relating to reintroductions (IUCN/SSC, 1995) to produce a sacred Bali starling that would be afforded protection by customary institutions on Nusa Penida that embody Hindu beliefs on the sanctity of all life. This process also transformed the starling into an

asset for local leaders seeking to protect their cultural traditions in the face of external commercial pressures.

These two Indonesian conservation initiatives raise questions about underlying assumptions within the international conservation regime. For instance, the market saturation approach of the Association for Conservation of the Bali Starling was proposed in 1996 by a progressive PHKA official and included in the PHKA/BirdLife Indonesia Programme Bali Starling Recovery Plan (Jepson et al., 1997) but it failed to gain international support. This was partly because of concerns that it contravened protected species legislation and might increase demand for wild birds (for breeding stock), but also because of assumptions that the keeping, protection and management of threatened species should be non-commercial, the prerogative of expert authorities, and performed in designated conservation territories. Although the Indonesian projects contravened a strict interpretation of species law, they delivered on the values enshrined in such law, namely, avoiding the extinction of species.

Contrasting the three conservation initiatives for the Bali starling helps clarify the distinction between a conservation partnership and a conservation network. The former is the more common arrangement and is exemplified by the collaboration of BirdLife, the Association of Zoos and Aquariums, and the Directorate General for Forest Protection and Nature Conservation to achieve a shared goal (saving the Bali starling) in accordance with international conservation norms. The international partnership prescribed a fixed identity for the Bali starling, namely that of a Critically Endangered bird of monsoon forest habitat, native to Bali, and sought to save their version of the starling. In contrast, the Association for Conservation of the Bali Starling and the Friends of the National Parks Foundation initiatives embraced the affordances of the Bali starling's phenotype (its beauty and simple ecology) to construct (or adopt) identities suited to local cultural contexts. In so doing they allowed the species a role in assembling a looser array of participants in conservation networks. These included participants that the international partnership eschewed or considered irrelevant, notably private owners of Bali starlings, prominent artists, politicians, and customary leaders. The network relationships produced forms of agency that resulted in reduced wild-capture, enhanced breeding, and increased numbers of Bali starlings released.

Conventional accounts of failures to save iconic species advocate the need for better site-based protection, better ecological knowledge, and increased political will and focus on donors (e.g. Sanderson et al., 2002; Brook et al., 2014). Such accounts assume that improved performance by established conservation organizations will deliver better outcomes. This study adds another dimension, suggesting that the involvement and leadership of local and non-establishment

conservation participants creates the conditions for impact. This is because they are better able to develop culturally attuned, incentive-based approaches that will enlist and mobilize a more heterogeneous network of actors in efforts to conserve a species.

I am aware that the debate on enforcement versus sustainable use is predominantly focused on strategies to conserve megafauna threatened by trade in international markets and concerns about the danger such markets create, particularly for rangers. However, the core message of this case study, that a pragmatic, contextual approach may be the best strategy for governing domestic wildlife trade, concurs with a considerable body of research on strategies to govern the bushmeat trade (Bennett et al., 2007; Minter, 2013). Further, it extends the argument of Roe et al. (2014) that restricting sustainable use of wildlife products can limit rural livelihood options to include urban communities. It is not clear whether international wildlife trade has different rules to domestic trade. It seems clear, however, that it would make sense to bring these two bodies of evidence into closer dialogue.

It is not my intent to denounce the international project of which I was part. It was of its time, and the Bali starling was effectively deployed as an asset in the establishment of international conservation institutions during the 1980s and 1990s. Rather, this case study brings to the fore the need for multi-level conservation governance institutions with built-in flexibility. Advocacy and decision making at the international level require a degree of simplification and abstraction. However, it is important that conservationists operating in this space are cognizant and reflexive concerning their limited understandings of the complex realities of in situ action. Generic approaches such as trade bans, stricter enforcement and consumer campaigns may appeal to politicians, funders and the urban public but they risk constructing a top-down prescriptive framework that compromises the ability of situated conservationists to develop interventions appropriate to their political and cultural realities. Perhaps it is time for internationally orientated conservation professionals to adopt principles aimed at nurturing culturally diverse approaches to governing wildlife trade and the conservation of threatened species.

Acknowledgements

I thank colleagues involved in Bali starling conservation for agreeing to be interviewed for this research, and staff of Friends of the National Parks Foundation for making me and my family so welcome in Ubud and Nusa Penida. Maan Barua, Rosaleen Duffy, Anna Hushlak, Meredith Root-Bernstein and four anonymous reviewers provided valuable comments for which I am very grateful. The research was part financed by a travel research grant from the School of Geography and the Environment, University of Oxford.

References

- BENNETT, E.L., BLENCOWE, E., BRANDON, K., BROWN, D., BURN, R.W., COWLISHAW, G. et al. (2007) Hunting for consensus: reconciling bushmeat harvest, conservation, and development policy in West and Central Africa. *Conservation Biology*, 21, 884–887.
- BETSILL, M. & BULKELEY, H. (2007) Looking back and thinking ahead: a decade of cities and climate change research. *Local Environment*, 12, 447–456.
- BIRDLIFE INTERNATIONAL (2001) *Threatened Bird of Asia: The BirdLife International Red Data Book*. BirdLife International, Cambridge, UK.
- BLOK, A. (2007) Actor-networking ceta-sociality, or, what is sociological about contemporary whales? *Distinktion*, 15, 65–89.
- BROOK, S.M., DUDLEY, N., MAHOOD, S.P., POLET, G., WILLIAMS, A. C., DUCKWORTH, J.W. et al. (2014) Lessons learned from the loss of a flagship: the extinction of the Javan rhinoceros *Rhinoceros sondaicus annamiticus* from Vietnam. *Biological Conservation*, 174, 21–29.
- BUTCHART, S.H.M., STATTERSFIELD, A.J. & COLLAR, N.J. (2006) How many bird extinctions have we prevented? *Oryx*, 40, 266–278.
- CALLON, M. (1986) Some elements in a sociology of translation: domestication of the scallops and fishermen of St. Brieuc Bay. In *Power, Action and Belief. A New Sociology of Knowledge* (ed. J. Law), pp. 196–223. Routledge, London, UK.
- CAUGHLEY, G. (1994) Directions in conservation biology. *Journal of Animal Ecology*, 63, 215–244.
- CHALLENGER, D.W. & MACMILLAN, D.C. (2014) Poaching is more than an enforcement problem. *Conservation Letters*, 7, 4–6.
- CITES (2014) *Convention on International Trade in Endangered Species of Wild Fauna and Flora. Appendices I, II and III*. <http://cites.org/eng/app/appendices.php> [accessed 18 December 2014].
- COLLAR, N.J., CROSBY, M.J. & STATTERSFIELD, A.J. (1994) *Birds to Watch 2: The World List of Threatened Birds*. BirdLife International, Cambridge, UK.
- COLLINS, M.S., SMITH, T.B., SEIBELS, R.E. & PUTRA, A. (1998) Approaches to the reintroduction of the Bali mynah. *Zoo Biology*, 17, 267–275.
- CONWAY, W.G. (1980) Where we go from here. *International Zoo Yearbook*, 20, 184–189.
- COONEY, R. & JEPSON, P. (2006) The international wild bird trade: what's wrong with blanket bans? *Oryx*, 40, 18–23.
- DIJKMAN, G. (2007) Bali myna takes flight to Nusa Penida. *BirdingAsia*, 7, 55–60.
- DJELIC, M.-L. & SAHLIN-ANDERSSON, K. (eds) (2008) *Transnational Governance: Institutional Dynamics of Regulation*. Cambridge University Press, Cambridge, UK.
- DUFFY, R. (2006) Non-governmental organisations and governance states: the impact of transnational environmental management networks in Madagascar. *Environmental Politics*, 15, 731–749.
- EARNHARDT, J.M., THOMPSON, S.D. & FAUST, L.J. (2009) Extinction risk assessment for the species survival plan (SSP) population of the Bali mynah (*Leucopsar rothschildi*). *Zoo Biology*, 28, 230–252.
- GIBBS, M.T. (2008) Network governance in fisheries. *Marine Policy*, 32, 113–119.
- GILPIN, M.E. & SOULÉ, M.E. (1986) Minimum viable populations: process of extinction. In *Conservation Biology: The Science of Scarcity and Diversity* (ed. M.E. Soulé), pp. 19–34. Sinauer Associates, Sunderland, USA.
- IUCN (2014) *IUCN Red List of Threatened Species v. 2014.3*. <http://www.iucnredlist.org> [accessed 17 December 2014].
- IUCN/SSC (1995) *Guidelines for Re-introductions*. http://intranet.iucn.org/webfiles/doc/SSC/SSCwebsite/Policy_statements/Reintroduction_guidelines.pdf. [accessed 7 January 2015].

- JEPSON, P., BARUA, M. & BUCKINGHAM, K. (2011a) What is a conservation actor? *Conservation & Society*, 9, 229–235.
- JEPSON, P. & LADLE, R.J. (2009) Governing bird-keeping in Java and Bali: evidence from a household survey. *Oryx*, 43, 364–374.
- JEPSON, P., LADLE, R.J. & SUJATNIKA (2011b) Assessing market-based conservation governance approaches: a socio-economic profile of Indonesian markets for wild birds. *Oryx*, 45, 482–491.
- JEPSON, P., VAN BALEN, S.V., SOEHARTONO, T.R. & MARDIASTUTI, A. (1997) *Rencana Pemulihan Spesies Jalak Bali/Bali Starling Recovery Plan*. PHPA/BirdLife International—Indonesia Programme, Bogor, Indonesia.
- KING, W.B. (1978–1979) *Red Data Book. Volume 2: Aves*. IUCN, Morges, Switzerland.
- LACY, R.C. (1993) VORTEX: a computer simulation model for population viability analysis. *Wildlife Research*, 20, 45–65.
- LADLE, R.J. & JEPSON, P. (2008) Toward a biocultural theory of avoided extinction. *Conservation Letters*, 1, 111–118.
- LATOUR, B. (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford University Press, Oxford, UK.
- LONDON CONFERENCE ON THE ILLEGAL WILDLIFE TRADE (2014) *Declaration*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/281289/london-wildlife-conference-declaration-140213.pdf [accessed 7 January 2015].
- LOVEJOY, T.E. (1980) Tomorrow's ark: by invitation only. *International Zoo Yearbook*, 20, 181–183.
- MCNEELY, J.A., MILLER, K.R., REID, W.V., MITTERMEIER, R.A. & WERNER, T.B. (1990) *Conserving the World's Biological Diversity*. IUCN, Gland, Switzerland.
- MINTEER, B.A. (2013) Conservation, animal rights, and human welfare. A pragmatic view of the 'bushmeat crisis'. In *Ignoring Nature No More. The Case for Compassionate Conservation* (ed. M. Bekoff), pp. 77–94. University of Chicago Press, Chicago, USA.
- OLDFIELD, S. (ed.) (2003) *The Trade in Wildlife: Regulation for Conservation*. Earthscan, London, UK.
- RHODES, R.A.W. (2007) Understanding governance: ten years on. *Organization Studies*, 28, 1243–1264.
- ROE, D., MILLEDGE, S., COONEY, R., 'T SAS-ROLFES, M., BIGGS, D., MURPHREE, M. & KASTERINE, A. (2014) *The Elephant in the Room: Sustainable Use in the Illegal Wildlife Trade Debate*. IIED Briefing Papers, London, UK.
- SANDERSON, E.W., REDFORD, K.H., CHETKIEWICZ, C.L.B., MEDELLIN, R.A., RABINOWITZ, A.R., ROBINSON, J.G., & TABER, A. B. (2002) Planning to save a species: the jaguar as a model. *Conservation Biology*, 16, 58–72.
- SHAFFER, M.L. (1981) Minimum population sizes for species conservation. *BioScience*, 31, 131–134.
- SHAVIT, D. (2006) *Bali and the Tourist Industry: A History, 1906–1942*. McFarland & Co., Jefferson, USA.
- SØRENSEN, E. & TORFING, J. (eds) (2007) *Theories of Democratic Network Governance*. Palgrave Macmillan, Basingstoke, UK.
- UNITED FOR WILDLIFE (2014) <http://www.unitedforwildlife.org> [accessed 17 December 2014].
- VAN BALEN, B. & DIRGAYUSA, I.W.A. (1993) *Bali Starling Project: Activity Report, September 1992–February 1993*. PHPA/ICBP Indonesia Programme, Bogor, Indonesia.
- VAN BALEN, V. & GEPAK, V.H. (1994) The captive breeding and conservation programme of the Bali starling (*Leucopsar rothschildi*). In *Creative Conservation: Interactive Management of Wild and Captive Animals* (eds P.J.S. Olney, G.M. Mace & A.T.C. Feistner), pp. 420–430. Chapman & Hall, London, UK.
- VINCENT, J. (1966–1971) *Red Data Book. Volume 2: Aves*. IUCN, Morges, Switzerland.

Biographical sketch

PAUL JEPSON directs an MSc in Biodiversity, Conservation and Management at the University of Oxford. He transferred to academia from a career in conservation policy, working in the UK, Indonesia and Indochina, and now leads an inter-disciplinary conservation governance laboratory working to generate novel and creative insight to help ensure the relevance and impact of conservation in the 21st century.