

Forum

The international wild bird trade: what's wrong with blanket bans?

Rosie Cooney and Paul Jepson

Abstract In response to a declaration in 2004 from a coalition of conservation and animal welfare organizations to ban imports of wild birds into the European Union, we propose that such blanket or indiscriminate bans are unlikely to be effective as a generic conservation approach to the wild bird trade. We further argue that such trade bans, particularly when imposed by Northern constituencies on Southern countries and communities, can act counter to broader values of equity and sustainable development. Here we draw attention to a range of

problems and unforeseen consequences of trade bans, and highlight the conservation potential of market-led mechanisms that seek to reform trade chains to make them more ethical and sustainable. We contend that it is time for conservation scientists to critically examine the evidence concerning the efficacy of these two strategies as they relate to the trade in wild birds.

Keywords Bird conservation, CITES, livelihoods, sustainable use, trade bans, wildlife trade.

Introduction

A coalition of 240 conservation and animal welfare organizations led by the World Parrot Trust is campaigning for the European Union to permanently ban imports of all wild-caught birds, regardless of conservation status (The European Union Wild Bird Declaration; WPT, 2004). Currently, the EU applies a range of import controls on a case-by-case basis that are pursuant to and stricter than those of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Several sectors within conservation and natural resource management have examined the effectiveness of trade bans and called into question their use as a generic approach. In areas such as timber and non-timber forest products, orchids, medicinal plants, fisheries and, increasingly, aquarium species, the normative view is that trade bans are (a) difficult to enforce, (b) can be counterproductive, and (c) may curtail or disrupt cultural practices that people value and are in themselves worthy of conservation (*sensu* Orlean, 2000; Guillen *et al.*, 2002; Wabnitz *et al.*, 2003).

While we recognise that trade bans are necessary and effective tools in specific cases, we propose here that it is

time for the bird conservation community to openly debate the effectiveness and appropriateness of trade bans, in particular indiscriminate import bans, as a generic conservation approach. Our argument is guided by the propositions that, as far as possible, conservation strategies should be informed by empirical and theoretical evidence, and should seek to align or balance conservation values with other relevant values, including national sovereignty, poverty alleviation, sustainable development and sustainable trade (Preamble, Convention on Biological Diversity, 1992; Brundtland, 1987; Costanza *et al.*, 1995; Adams *et al.*, 2004). We propose that in the bird trade, as with the sectors named above, market-based mechanisms linked to the notion of ethical consumerism and backed up with an enabling legal and regulatory environment may be better placed to deliver conservation and these broader values.

The argument for banning wild bird trade

The Wild Bird Declaration argues that blanket import bans represent 'simple, clear, and implementable' legislation that 'can eliminate the threat posed by the EU market virtually overnight', and generate 'positive and concrete benefits' for many sectors of society. It argues that a 'no birds allowed policy' (a) is easy for border personnel to implement, (b) will deter smugglers, and (c) will change consumer attitudes, leading to reduced demand; that (d) wild bird trade hampers non-extractive uses of wildlife (e.g. ecotourism), and there is no evidence that (e) profits from wild bird trade have provided incentives for habitat protection, or (f) populations of

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wild birds can in fact be harvested sustainably. We suggest that the evidence for each of these claims is questionable, and that the overall claim concerning the efficiency of bans assumes a simple causality unlikely to match a complex reality.

We begin with the nature and scale of the threat. The Declaration does not clarify whether the focus of the proposed ban is primarily legal trade at unsustainable levels or illegal trade, and provides little information on either. Much legal trade involves species for which trade does not raise conservation concerns, and that are not listed under EU CITES implementing legislation. For listed birds, import of controlled species is subject to a finding that the trade will not prove detrimental to the wild population. Of these listed species, the majority of reported trade in recent years has been of finches of the families Fringillidae, Estrildidae and Ploceidae (T. Inskipp, pers. comm.). International trade is often overstated as a threat to birds (Du Plessis, 2000); for globally threatened birds trade ranks behind habitat loss and hunting for food (BirdLife, 2004), and much trade will be for domestic rather than international markets. However, unsustainable or illegal international trade remains an important threat to some species.

In some circumstances trade bans can be effective tools against such threats (IUCN, 2000). However, whether they lead to good conservation outcomes in specific cases depends on a myriad of factors, including enforcement capacity, the elasticity of demand and supply, the property rights regime in place, the timing of the ban, and the value of non-consumptive uses such as ecotourism (IUCN 2000, Roe *et al.*, 2002; Bulte *et al.*, 2003; Horan & Bulte 2004; Missios, 2004).

The NGO Declaration proposes that an across-the-board ban would reduce demand, deter illegal trade and be easy to enforce. We consider these propositions in turn. The general proposition that trade bans reduce or eliminate demand is far from clear, and in many cases demonstrably false. Consider Prohibition in the USA in the 1930s, or current efforts to ban illicit drugs. Ongoing demand for and trade in tiger parts, rare orchids, and elephant ivory, despite national and international trade bans, provides abundant testimony. Demand for wild birds is likely to persist under a ban (Juniper, 2002; Madelin, 2004) and can even increase in specialist markets. For example, in Indonesia wild birds are kept, in part, for the social status they bring. Ownership of a rare and regulated species is 'a popular way of showing that one is sufficiently important and powerful to be immune from prosecution' (Nash, 1993).

Rather than deterring illegal trade, trade bans may provide stronger incentives for illegal trade. Whilst tight limits on trade will often be necessary for threatened species, cutting the supply of non-threatened and common

birds may increase their value, thereby creating a lucrative business opportunity for illegal operators (Moyle, 2003). Economic logic and empirical evidence suggests restricting supply of wildlife or wildlife products will drive prices up. The international ban on rhino horn, for instance, was followed by a dramatic rise in prices in all consumer markets (e.g. in Japan from USD 75 to USD 308 kg⁻¹) fuelling further poaching ('t Sas Rolfes, 2000). Similarly, under national and international trade bans hyacinth macaws *Anodorhynchus hyacinthus* changed hands in the 1980s for up to 8,000 USD (Mulliken & Thomsen, 1995, cited in Broad *et al.*, 2003).

Enforcement is clearly a critical element of the relationship between bans and trade: if enforcement is effective, bans will generally have more impact on trade (although they may still have perverse effects; IUCN, 2000; Horan & Bulte, 2004; Missios, 2004). We are unconvinced by the argument that an across-the-board import ban will allow easier enforcement and detection of illegal trade. Firstly, it is not proposed that the ban extends to captive bred birds. As the EC has pointed out (Madelin, 2004), an obvious way to circumvent the ban is to mis-declare wild birds as captive bred, a strategy that has been adopted in the past. Secondly, much illegal trade in birds takes place through smuggling rather than use of forged documentation, and there is little reason to think that success of these means would be changed under a ban.

In support of its overall claim that ending legal trade will effectively combat illegal trade, the Declaration cites the impact of the USA Wild Bird Conservation Act, which in 1992 prohibited import of wild birds into the USA. It specifically relies on the study of Wright *et al.* (2001), which examined rates of nest poaching of Neotropical parrots pre- and post-1992. The Declaration claims that this shows 'a strong positive correlation between the existence of legal markets for parrots and levels of illegal trade; when the legal trade into the USA was stopped by the Wild Bird Conservation Act of 1992, the illegal trade all but disappeared'. However, the impact of the USA ban, the relationship between legal and illegal trade, and the putative decrease in illegal trade into the USA all remain open questions. Looking first at the impact of the ban, Wright *et al.* (2001) show that for 10 species for which poaching rates were available in both periods, nest poaching was significantly lower post-1992. However, they show there was no significant decrease in poaching rate in a pooled comparison including all species for which data were available in either period. More fundamentally, as the paper's authors point out, this simple correlation could be confounded by a variety of factors, including any increase in protection efforts over this period; a strong finding of the study is the efficacy of such measures. Another potential confounding factor is that Mexico, where three of the 10 species were studied,

joined CITES (thus assuming obligations to control wildlife trade) in 1991, and Cuba, where one other was studied, in 1990. Therefore there appears little reason to assume one correlated factor, the USA ban, is causative. Turning to the relationship between legal and illegal trade, in the pre-1992 period nine of the 10 species examined were either in CITES Appendix I (3 species) or the studies took place in countries whose national law prohibited export (6 of the remaining 7) (UK Joint Nature Conservation Committee, pers. comm), meaning legal trade into the USA should have been negligible even before the import ban. The basis to test for a correlation between legal and illegal trade therefore does not appear to be present. Finally, if the illegal trade into the USA has virtually disappeared it is surprising that the years since the ban have seen a surge of proposals to uplist CITES Appendix II listed parrots from Central America (including two of the 10 studied) to Appendix I, citing illegal export to the USA as a factor driving declines (CITES Proposals 12.16, 12.17, 13.13). The impacts of the Act clearly require further assessment before broad policy recommendations can be drawn.

What's wrong with trade bans?

In our view the proposition that extending current trade restrictions to criminalize all wild bird trade will effectively combat illegal trade is unlikely. Rather, it risks stimulating further illegal activity. From an animal welfare and conservation viewpoint illegal trade has many drawbacks: it does not conform to any sustainability or welfare requirements and is impossible to monitor, precluding the possibility of tracking changes in trade levels that could trigger conservation concern and action in range states. A further drawback is that none of the revenues from illegal trade can be captured for conservation (IUCN, 2000).

More generally, trade bans that are imposed on countries or communities without their consultation, support or involvement have drawbacks and risks in terms of securing conservation objectives in range states. They may be based on poor or incomplete knowledge of on-the-ground reality, and contribute nothing to mobilising or boosting the capacity of the agencies and authorities from national to local level whose engagement is critical for effective management and enforcement. For instance, in 1992 the Tanimbar corella *Cacatua goffini* was listed in Appendix I of CITES against the wishes of the range state Indonesia. The species was later found to be abundant and an agricultural pest, and the ban had several unforeseen and negative conservation impacts (Jepson *et al.*, 2001). It created a climate of distrust of NGOs within the provincial forestry department of Maluku and among influential citizens on the islands of Tanimbar,

and created the local perception that NGOs were politically motivated and involved in the spread of misinformation. A broader impact was that planning for a project to establish a major ecosystem reserve in the Tanimbar archipelago was abandoned. Meanwhile trapping continued, but as there was no longer a market for the birds they were simply exterminated, leaving farmers uncompensated for damage to maize fields (MacKinnon, 1998).

Indiscriminate trade bans further remove the potential for sustainable trade to provide critically-needed revenue and incentives for conservation. Some conservation agencies in developing countries derive significant revenue from licences and permits, and removing these could undermine both capacity and political will to invest in the required management and enforcement. A 2001 study in Guyana found the entire annual operating costs of USD 112,000 per year of the Division responsible for wildlife trade and CITES, including enforcement, was met by licences and permit fees for wildlife trade, mainly of parrots (Duplaix, 2001). Blanket import bans further remove the option for countries to invest in developing well-managed programmes in which sustainable trade in wild birds provides economic incentives to counter the threats of conversion of wild lands to intensive uses such as agriculture. With habitat loss, degradation and fragmentation the overwhelming threat to birds (Birdlife, 2004) such incentives are clearly vital.

More broadly still, international trade in wild species is not just a conservation issue, but goes to the heart of the difficult reconciliation between human needs and environmental protection required for any form of sustainability. While the overall value of the wild bird trade may be meagre in comparison to more lucrative commodities, a decision of a rich region that removes economic options from communities or countries facing stark poverty should require a convincing conservation justification. Data on the contribution wild bird trade makes to local livelihoods are patchy and difficult to gather, and strong caveats accompany the following estimates. In Tanzania in the early 1990s income from bird trapping and trade was an important component of livelihood strategies (Moyer, 1995). Between 4,150 and 8,300 people were estimated to be involved (Edwards & Broad, 1992) and, given average family sizes, economic benefits could have flowed to 40,000–80,000 people (Roe *et al.*, 2002). In Senegal in 1992 it was estimated that *c.* 2,400 trappers were involved in the bird trade and trapping of 1,000 passerines per year yielded more than a farmer's average annual income (USD 91 compared to USD 73; Edwards & Biteye, 1992). For many traditional and indigenous peoples, while bird trade will usually be a peripheral activity to agriculture or other activities, it may be an important or only source of cash income in times of hardship or to pay for commodities or needs such as

schooling for children. Wild bird exports from Guyana in 1986 had an estimated value of USD 1.4 million (Roe *et al.*, 2002) and were a key income source for Amerindian men (Edwards, 1992), and bans in the 1990s caused hardship (Duplaix, 2001).

While indiscriminate import bans on wild birds are likely to decrease revenue for range states, they are likely to boost revenue for captive breeders, largely located in consumer countries. The net effect is that the economic value of bird species, including common and pest species, is realized by the North rather than the South. This not only decreases the value of wild species and habitats in range states (*sensu* Swanson, 1992), but sits uncomfortably with emphasis in discussions under the Convention on Biological Diversity and CITES on national sovereignty over biodiversity and biological resources, the equitable sharing of their benefits, and links between *in situ* and *ex situ* conservation (CBD Preamble and Dec. VI/24; CITES Res. Conf. 13.9).

Finally, many argue that the social and conservation value of the bird trade at the consumer end of the trade chain is an important consideration, and that keeping birds enriches many people's lives (WPT, 1997). As with zoos, it may be that trade keeps exotic birds in the public mind and promotes concern for their *in situ* conservation.

Revisiting thinking on trade bans

An evidence-based policy debate on this issue is difficult, as empirical evidence is fragmentary. On the basis of the points above, however, we argue that while context-specific trade bans can be effective and necessary, an indiscriminate ban on imports of wild birds into the EU would constitute poor conservation policy. This is because it would be unlikely to be effective in ending illegal trade, would contribute little to management of species and habitats *in situ*, and nothing to building long-term conservation solutions or capacity in range states. Furthermore, it could erode local livelihood strategies, remove incentives and revenue for good management and habitat conservation, and shift the value of biodiversity from range states to consumer states.

We suggest that a more effective mechanism may be found in market-led approaches that seek to reform trade chains to make them more sustainable and equitable, rather than outlaw or destroy them. This is achieved through linking changes in the production of natural resources to the growth in ethical consumerism. In the case of birds, and with the appropriate levels of investment, trade chains in many species could be made conservation benign or positive by replacing unregulated capture of wild birds with managed offtake, *in situ* breeding (nest boxes) or captive breeding in range states, in conjunction with education of consumers.

Conservationists working to protect coral reefs and reef fishes are adopting this approach. They accept that collecting tropical fish brings pleasure to millions and fuels an important and mostly legitimate industry. The Marine Aquarium Council is creating conservation-orientated trade chains by empowering consumer choice with a certification mechanism that tracks an animal from ocean to aquarium. Sustainability is developed by bespoke approaches tailored to particular species, trade chains and socioeconomic contexts. Techniques include quotas, size limits, licensing, aquaculture (e.g. of corals) and *in situ* captive production (e.g. of sea horses). Internet and webcam technology that enables a hobbyist to select fishes from the site of production further motivates consumer choice, and promotes well-managed shipping and husbandry practices that keep mortality levels to a minimum.

The trade in aquarium fish is a *c.* USD 300 million industry moving towards sustainability and with the potential to help ease poverty, protect coral reefs, and educate people about their conservation (Wabnitz *et al.*, 2003). We suggest that the wild bird trade has similar potential. Aquarium animals are the highest value-added product that can be harvested from their habitat and the same may be true for birds. Moreover, for bird species valued for their vocabulary, song and/or endearing behaviour, significant value could be added at the beginning of a supply chain, for instance by taming and training wild-harvested, captive-reared birds (e.g. chicks from nest boxes).

There is scope for a well-managed international trade in wild birds. The Argentine government has invested in a programme of regulated trade of blue-fronted amazons *Amazona aestiva* from the Chaco region, replacing a high-volume and poorly regulated trade that yielded only minor revenues to local people. While trade is now a fraction of its former quantity, revenue from the programme is financing three strictly protected areas of species habitat (Secretary of the Environment and Sustainable Development of Argentina, 2005), and providing almost 20% of annual family income for peasant landowners, countering pressures for agricultural intensification and conversion to soybeans (Rabinovich, 2005). The conditions under which well-managed wildlife trade yields benefits for conservation and livelihoods are complex, but it is clear it can be done (Roe *et al.*, 2002).

We are unclear why the international bird conservation establishment is so conservative when it comes to the bird trade, investing much in pursuing trade bans, including CITES Appendix I listings, but little in promoting sustainable offtake and substitution. This may reflect politics: a debate on trade in wild birds has a strongly emotive aspect rare in debates over trade in non-sentient or less charismatic species such as plants or fish. It

engages the animal rights and welfare movement, which has traditionally adopted pressure tactics (such as bans and petitions) in pursuit of its cause. Practical factors may be at play. Bans represent an appealingly simple solution that resonate in the Northern public mind with iconic campaign strap-lines. They align with the profile of those likely to provide NGOs with support, subscriptions, donations and legacies. By contrast, the market-led approaches we advocate here are complex, not susceptible to easy generalization, require an understanding of trade chains, markets and economic incentives, and are built on recognition of human self-interest. Alternatively, the explanation may lie in the rarity of business skills and experience among conservationists, or a belief that trade chains are controlled by criminals and are beyond reform. Finally, the pursuit of bans is comparatively cheap, and represents an activity where Northern-located staff can achieve a tangible conservation outcome.

In summary, we suggest that conservation scientists, NGOs and the wider bird conservation community should abandon calls for unilateral and indiscriminate trade bans on wild birds. They should critically examine the evidence for and against the two basic strategic options: curtail and/or criminalise trade chains, or reform them to make them more sustainable, ethical, and equitable.

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References

- 't Sas Rolfes, M. (2000) Assessing CITES: four case studies. In *Endangered Species, Threatened Convention: The Past, Present and Future of CITES* (eds J. Hutton & B. Dickson), pp. 69–87. Earthscan, London, UK.
- Adams, W.M., Aveling, R., Brockington, D., Dickson, B., Elliott, J., Hutton, J., Roe, D., Vira, B., & Wolmer, W. (2004) Biodiversity conservation and the eradication of poverty. *Science*, **306**, 1146–1149.
- BirdLife (2004) *State of the World's Birds*. BirdLife, Cambridge, UK.
- Broad, S., Mulliken, T. & Roe, D. (2003) The nature and extent of legal and illegal trade in wildlife. In *The Trade in Wildlife: Regulation for Conservation* (ed. S. Oldfield), pp. 3–22. Earthscan, London, UK.
- Brundtland, G. (1987) *Our Common Future: The World Commission on Environment and Development*. Oxford University Press, Oxford, UK.
- Bulte, E., Horan, R. & Shogren, J.F. (2003) Elephants: comment. *The American Economic Review*, **93**, 1437–1445.
- Costanza, R., Audley, J., Borden, R., Ekins, P., Folke, C., Funtowicz, S. & Harris, J. (1995) Sustainable trade: a new paradigm for world welfare. *Environment*, **37**, 16–20, 39–44.
- Du Plessis, M. (2000) CITES and the causes of extinction. In *Endangered Species, Threatened Convention* (eds J. Hutton & B. Dickson), pp. 13–25. Earthscan, London, UK.
- Duplaix, N. (2001) *Evaluation of the Animal and Plant Trade in the Guianas: Preliminary Findings*, WWF-Guianas, Paramaribo, Suriname.
- Edwards, S. (1992) Wild Bird Trade: Perceptions and Management in the Cooperative Republic of Guyana. In *Perceptions, Conservation and Management in the Wild Bird Trade* (eds J. Thomsen, S. Edwards & T. Mulliken), pp. 77–91. TRAFFIC International, Cambridge, UK.
- Edwards, S. & Biteye, M. (1992) Wild bird trade: perceptions and management in Senegal. In *Perceptions, Conservation and Management of Wild Birds in Trade* (eds J. Thomsen, S. Edwards & T. Mulliken), pp. 117–130. TRAFFIC International, Cambridge, UK.
- Edwards, S. & Broad, S. (1992) Wild bird trade: perceptions and management in the Republic of Tanzania. In *Perceptions, Conservation and Management of Wild Birds in Trade* (eds J. Thomsen, S. Edwards & T. Mulliken), pp. 131–150. TRAFFIC International, Cambridge, UK.
- Guillen, A., Laird, S., Shanley, P. & Pierce, A. R. (2002) *Tapping the Green Market: Certification and Management of Non-Timber Forest Products*. Earthscan, London, UK.
- Horan, R. & Bulte, E. (2004) Optimal and open access harvesting of multi-use species in a second-best world. *Environmental and Resource Economics*, **28**, 251–272.
- IUCN (2000) The effectiveness of trade measures contained in the Convention on International Trade in Wild Species of Fauna and Flora (CITES). *Trade Measures in Multilateral Environmental Agreements*. Report to the Economics, Trade and Environmental Unit, United Nations Environment Programme, Nairobi, Kenya.
- Jepson, P., Brickley, N. & Chayadin, Y. (2001) The conservation status of Tanimbar corella and blue-streaked lory on the Tanimbar islands, Indonesia: results of a rapid contextual survey. *Oryx* **35**, 224–233.
- Juniper, T. (2002) *Spix's Macaw: The Race to Find the World's Rarest Bird*. Fourth Estate, London, UK.
- MacKinnon, K. (1998) Sustainable use as a conservation tool in the forests of South-east Asia. In *Conservation of Biological Resources* (eds E. J. Milner-Gulland & R. Mace), pp. 174–192. Blackwell Science, Oxford, UK.
- Madelin, R. (2004) Annex, Correspondance to J. Gilardi, European Commission Health and Consumer Protection Directorate-General, EC Ref: E2/AB D(2004) 522520
- Missios, P. (2004) Wildlife trade and endangered species protection. *The Australian Journal of Agricultural and Resource Economics*, **48**, 613–627.
- Moyer, D. (1995) *The status of Fischer's lovebird Agapornis fischeri in the United Republic of Tanzania*. IUCN Species Survival Commission, Gland, Switzerland, and Cambridge, UK.
- Moyle, B. (2003) Regulation, conservation, and incentives. In *The Trade in Wildlife: Regulation for Conservation* (ed. S. Oldfield), pp. 41–51. Earthscan, London, UK.
- Nash, S.V. (1993) Sold for a song: the trade in South-east Asian non-CITES birds. In *Species in Danger*, TRAFFIC International, Cambridge, UK.
- Orlean, S. (2000) *The Orchid Thief*. Vantage, London, UK.
- Rabinovich, J. (2005) The blue-fronted amazon: Project Ele and the precautionary principle. *Biodiversity and the Precautionary Principle: Risk and Uncertainty in Conservation and Sustainable Use* (eds R. Cooney & B. Dickson), pp. 173–188. Earthscan, London, UK.

Roe, D., Mulliken, T., Milledge, S. Mremi, J. Mosha, S. & Grieg-Gran, M. (2002) Making a killing or making a living? Wildlife trade, trade controls and rural livelihoods. *Biodiversity and Livelihoods Issues*, IIED and IUCN, London, UK.

Secretary of the Environment and Sustainable Development of Argentina (2005) *Conservación y aprovechamiento sustentable del loro hablador* (Amazona aestiva). [Http://www.medioambiente.gov.ar/fauna/programas/manejo/proyecto_ele/default.htm](http://www.medioambiente.gov.ar/fauna/programas/manejo/proyecto_ele/default.htm) [accessed 25 October 2005].

Swanson, T. (1992) *The International Regulation of Extinction*. Macmillan, London, UK.

Wabnitz, C., Taylor M., Green, E & Razak, T. (2003) *From Ocean to Aquarium: the Global Trade in Marine Ornamental Species*. UNEP-WCMC, Cambridge, UK.

WPT (World Parrot Trust) (1997) *A Manifesto for Aviculture*. [Http://www.worldparrottrust.org/publications/aviculture.htm](http://www.worldparrottrust.org/publications/aviculture.htm) [accessed 25 October 2005].

WPT (World Parrot Trust) (2004) *The European Union Wild Bird Declaration: An NGO Call to Halt Wild Bird Imports into the European Union*. [Http://www.worldparrottrust.org/trade/wildbirddec/wbdec.pdf](http://www.worldparrottrust.org/trade/wildbirddec/wbdec.pdf) [accessed 25 October 2005].

Wright, T.F., Toft, C.A., Enkerlin-Hoeflich, E., Gonzalez-Elizondo, J., Albornoz, M., Rodriguez-Ferraro, A., Rojas-Suárez, F., Sanz, V., Trujillo, A., Beissinger, S.R., Berovides A., Gálvez A., Brice, A.T., Joyner, K., Eberhard, J., Gilardi, J., Koenig, S.E., Stoleson, S., Martuscelli, P.,

Meyers, J.M., Renton, K., Rodríguez, A.M., Sosa-Asanza, A.C., Vilella, F.J., Wiley, J.W. (2001) Nest Poaching in Neotropical Parrots. *Conservation Biology*, **15**, 710–720

Biographical sketches

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