



Review paper

Towards informed and multi-faceted wildlife trade interventions

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ABSTRACT

International trade in wildlife is a key threat to biodiversity conservation. CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, seeks to ensure international wildlife trade is sustainable, relying on trade bans and controls. However, there has been little comprehensive review of its effectiveness and here we review approaches taken to regulate wildlife trade in CITES. Although assessing its effectiveness is problematic, we assert that CITES boasts few measurable conservation successes. We attribute this to: non-compliance, an over reliance on regulation, lack of knowledge and monitoring of listed species, ignorance of market forces, and influence among CITES actors. To more effectively manage trade we argue that interventions should go beyond regulation and should be multi-faceted, reflecting the complexity of wildlife trade. To inform these interventions we assert an intensive research effort is needed around six key areas: (1) factors undermining wildlife trade governance at the national level, (2) determining sustainable harvest rates for, and adaptive management of CITES species, (3) gaining the buy-in of local communities in implementing CITES, (4) supply and demand based market interventions, (5) means of quantifying illicit trade, and (6) political processes and influence within CITES.

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1. Introduction and aims

Globally, overexploitation of wildlife resources is a key threat to biodiversity conservation, much of which takes place for trade (Broad et al., 2003; Butchart et al., 2010). Although most trade occurs at the local and national level, large volumes of international trade also takes place annually, which can diminish wildlife populations, cause species extirpations, and ultimately threaten ecosystem function (Roe et al., 2002; Nijman, 2010; Smith et al., 2010; Duckworth et al., 2012). CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, which entered into force in 1975, is the primary mechanism for regulating international wildlife trade (CITES, 2014a; Wijnstekers, 2011). It seeks to restrict trade in c.35,000 species to sustainable levels using a combination of trade bans and controls. It is implemented by member states (or 'Parties', currently 180), through a system of permits, national legislation and enforcement mechanisms and nominated national agencies (CITES, 2014a).

Despite near universal accession, high volumes of illegal trade in many CITES-listed species takes place annually (e.g., Rosen and Smith, 2010 and Phelps et al., 2010). This is worth an estimated USD20 billion a year globally (South and Wyatt, 2011) and is seemingly unsustainable in many cases. Declining populations of the tiger (*Panthera tigris*), Asian bear species, and the extirpation of the Javan rhino (*Rhinoceros sondaicus*) in Vietnam in 2011, all high-value species subject to CITES strictest trade controls, demonstrate the impact this trade can have on wildlife populations (Abensperg-Traun, 2009; Brook et al., 2012). Similarly, poaching of rhino in Africa and volumes of elephant ivory in illegal trade are currently at record levels (Biggs et al., 2013; Underwood et al., 2013) and illicit trade is causing declines in populations of other mammals as well as birds, amphibians, reptiles, gastropods and marine fishes (e.g., Challender et al., 2014; Theile, 2005; Giles et al., 2006; Herrera and Hennessey, 2007; Lyons and Natusch, 2011; Birdlife, 2011 and Rosen and Smith, 2010), which raises fundamental questions about the efficacy and nature of current, regulatory interventions.

However, despite a large body of literature on CITES and claims it is effective (e.g., Huxley, 2000 and Fuchs, 2010), there has been little comprehensive review of its efficacy (though see IUCN, 2001). Existing research has been species-specific (e.g., Shepherd and Nijman, 2008; Burn et al., 2011 and Vincent et al., 2013), or examined the impacts of trade controls more broadly (e.g., Rivalan et al., 2007 and Courchamp et al., 2006). In this paper we review typical and atypical approaches taken to regulate wildlife trade in CITES, i.e. interventions prescribed in the Convention text as well as those developed since, and critically evaluate its effectiveness. Although determining the efficacy of CITES is difficult, and though it may have had many successes, these are not easily apparent and evidence suggests that CITES can list few clearly measurable conservation successes. We argue that this can be attributed to five overarching factors: non-compliance, an over reliance on regulation, lack of knowledge and monitoring of listed species, ignorance of market forces, and influence among CITES actors. To more effectively manage trade we argue that interventions need to go beyond regulation and should be multi-faceted, reflecting the inherent socio-economic and cultural complexity of wildlife trade. To inform such interventions we assert an intensive research effort is needed and we outline six key areas where attention should be focused: (1) factors undermining wildlife trade governance at the national level, (2) determining sustainable harvest rates for, and adaptive management of CITES species, (3) gaining the buy-in of local communities in implementing CITES, (4) supply and demand based market interventions, (5) means of quantifying illicit trade, and (6) political processes and influence within CITES.

2. Methodology

To inform our review we drew on the CITES and wider wildlife trade literature. Specifically, we searched for articles in the Web of Science database [v.5.14] using the keywords 'CITES', 'CITES effectiveness' and 'wildlife trade', and Google Scholar, and drew on key texts on CITES (e.g., Oldfield, 2003; Reeve, 2002 and Hutton and Dickson, 2000) for evidence of its effectiveness, or otherwise, and contributing factors. Based on this evidence, we conceptualised overarching factors currently shaping the effectiveness of CITES.

3. CITES

3.1. CITES structure

CITES entered into force to govern the import, (re-)export and introduction from the sea of approximately 1100 listed species (CITES, 2014a; Wijnstekers, 2011). Although it initially lacked an expressly stated goal that it seeks to ensure

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