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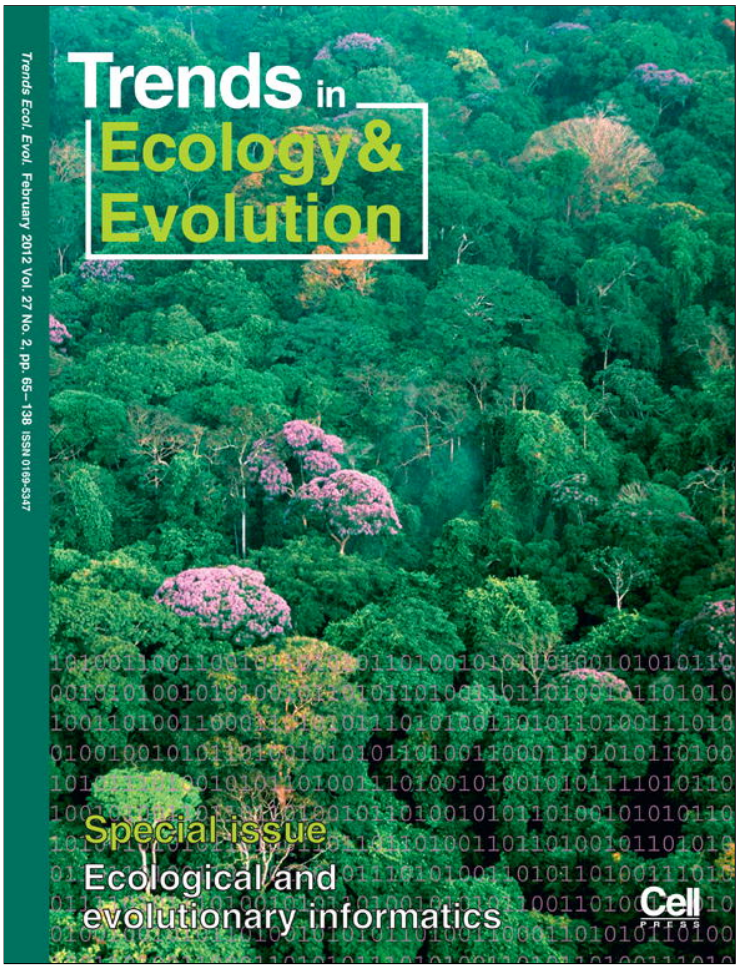

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Intraspecific behavioral variation is important in both deliberate and unintentional species introductions: response to Carrete *et al.*

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In a recent review in *TREE* [1], we outlined a conceptual framework for how inter-and intraspecific behavioral variation may influence the success of unintentional species introductions, particularly during the pre-establishment phase of the introduction process [2]. Carrete and colleagues [3] argue that selective factors acting on intraspecific behavioral variation can also be important in the success of deliberate species introductions prior to establishment. We agree. Indeed, our review included several examples of how behavioral variability could enhance the post-establishment success of deliberately introduced species [4].

However, Carrete *et al.* imply that we did not consider individual-level behavioral variation to be important during the pre-establishment phase of deliberate species introductions. This is incorrect and appears to stem from a misinterpretation of several statements in our review relating to intentional species introductions bypassing the initial stages of the introduction process. We were simply highlighting, as have others [5–7], that the selection of species for intentional introduction is heavily influenced by human biases for species with particular traits or attributes (e.g. for biocontrol or the pet trade). That is, our statement related to the biased selection of species rather than to intraspecific behavioral variation.

Nonetheless, in the context of deliberate introductions, Carrete *et al.* outline several behaviors that may predispose certain individuals to capture, survival during transport and captivity, and release from captivity. Given that our review largely focused on unintentional species introductions, the behaviors highlighted by Carrete *et al.* provide an informative and valuable discussion that not only reinforces one of our key points, that pre-establishment factors are important determinants of invasion success, but also broadens the application of our conceptual framework to both deliberate and unintentional species introductions.

Although pre-establishment factors may be important in the success of both types of species introduction, we argue that the selective pathways differ between deliberate and unintentional introductions. For deliberately introduced species, humans select the species that are introduced into new regions and, within these, selection acts on intraspecific behavioral variation (and variation in other traits) during capture, captivity, transport and release [3]. By contrast, unintentional introductions may be more reliant on biological factors, because interspecific trait and behavioral variation influences both the 'opportunity' and propensity of a species for transportation [1]. As outlined in our review, once ensnared in the transport vector, intraspecific behavioral variation may contribute to the likelihood of transitioning through the initial stages of the introduction process. However, despite these different pathways, important similarities in behaviors or personalities (e.g. boldness, exploratory behavior or aggression) could influence the success of both unintentional [1] and deliberate [3] introductions during the pre-establishment phase.

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