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CORRESPONDENCE

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Welcome small patches; beware of the risks of changing conservation priorities

Recently, Riva and Fahrig revisited the SLOSS question with fresh data from Chase et al. (2019) and concluded that small patches (SP) are disproportionately important for biodiversity conservation compared to large patches (LP). They recommended that conservation priorities, canonically oriented toward LP, should shift to recognize the value of SP. We appreciate their new analysis, agree that SP have outstanding importance for maintaining diversity, and understand they do not suggest neglecting LP. However, we want to clarify two points. First, the political reality is that conservation decisions are rarely as clean cut as choosing to conserve one large patch versus several SP. Second, time lags and spatial dependencies in extinction dynamics severely complicate the interpretation that SP are better for biodiversity conservation.

Conservation biology does not happen in a void, and studies that seek to influence decision-making need to address political and institutional reality. Many countries, especially in the tropics, face recurring threats to biodiversity, including inside protected areas, and these threats are not distributed evenly across patch sizes, occurring more severely on SP (e.g., Reid et al., 2019). Even large reserves with highly restrictive human use face multiple threats including deforestation, changes in protection status, and/or area reduction. Moreover, the dismantling of environmental laws and institutions in charge of environment protection, currently happening in several countries (e.g., Vale et al., 2021), put at risk the role current reserves of any size have in protecting highly sensitive species and those that require large habitats.

Furthermore, the detection of high species richness and globally endangered species in SP, even the older ones, does not guarantee the local presence of viable populations. These patterns may result from past landscape connectivity, especially in highly dynamic landscapes (e.g., Atlantic Forest). Although fragmented for decades, landscapes may have only recently crossed extinction thresholds (Figure S2), sheltering declining populations and unpaid extinction debts (Lira et al., 2019). Furthermore, the presence of continuous/very large unprotected forest remnants (Figure S3) can act as biodiversity sources to SP. Very large habitat areas may be particularly important for maintaining sensitive and long-life cycle species in highly dynamic landscapes undergoing replacement of old growth with small, ephemeral forests (Rosa et al., 2021).

We advocate for diverse conservation portfolios that are tailored to regional ecological and political realities and include protecting and restoring SP and LP, as well as promoting landscape permeability in the agricultural matrix. In the current political environment, discussing changes to conservation priorities in reductionist terms can have dire consequences for the fate of LP, both protected and unprotected. Also, adding more SP to reserve systems could overwhelm defunded and overburdened public agencies. Alternatively, creating or reinforcing mechanisms to devolve the protection of SP to landowners would release public agencies from managing small reserves, allowing them to focus on avoiding deforestation (of both LP and SP) and managing large reserves. “Legal Reserves” (mandatory set aside areas inside landholdings) and “Private Natural Heritage Reserves” (voluntary) are examples already present in Brazilian law (Metzger et al., 2019) representing a great opportunity to protect SP, without the inherent risks of shifting conservation priorities.

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Reply to Riva & Fahrig, 2022 ("The disproportionately high value of small patches for biodiversity conservation").

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