



Editorial: Triage in Conservation

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Editorial on the Research Topic

Triage in Conservation

Making good decisions remains an important aspect of conservation practice, and is typically underpinned by good science (Pullin et al., 2004; Cook et al., 2013; Roux et al., 2015). These decisions are informed by a variety of contexts and values but are also affected by uncertainty (Regan et al., 2005; Nicholson and Possingham, 2007). Conservation triage as a means to improve decision making and prioritize actions is a polarizing issue. Proponents see it as the most logical way of using limited conservation resources (Hobbs et al., 2003; Bottrill et al., 2008), whereas opponents reject the limitations imposed by society (notably governments) and seek adequate funding for the conservation of our natural heritage (Jachowski and Kesler, 2009). While triage has been used successfully to optimize the allocation of limited funds to conservation (Joseph et al., 2009), it is not universally accepted. In essence, this is much the same debate that is raging in broader conservation circles between the economic growth-based or humanitarian model of “new conservation,” whereby society and economic growth via the ecosystem services biodiversity provides are used as drivers in an “it pays – it stays” system (Kareiva et al., 2012) and the traditional conservation model, where biodiversity is valued for its own sake and our responsibilities for intergenerational equity (Soule, 2013). New conservation leans heavily on economic neoliberalization, but the merits of this economic model are now being questioned (Tabb, 2003; Altvater, 2009; Merino et al., 2010). It could also be argued that proponents of conservation triage are promoting a realistic (defeatist) solution whereas opponents are being overly optimistic.

This collection of papers in the *Triage in Conservation* topic investigated these issues from a suite of different viewpoints. Several papers investigate the merits of employing triage methods for the conservation of specific issues. These papers emphasize the need to include complexities associated with local context into the decision making process. A central theme for a number of these papers was the prioritization of connectivity conservation efforts, such as Asian elephants *Elephas maximus* facing connectivity and human-wildlife conflict threats (Goswami and Vasudev), seeking funds via a “triage of means” strategy to improve 9,371 km² of off-park connectivity for tigers *Panthera tigris* (Mondal et al.), shaping the development process to improve the conservation outcomes of linear transportation corridors in India (Habib et al.). Monitoring activities were also considered in the context of triage, as ongoing monitoring and review of population trajectories facilitates appropriate management and mitigation of pressures impacting these communities. As Wheeler et al. showed there was not widespread support for using triage to allocate monitoring effort in the Arctic. Linked to population level monitoring is the need to re-evaluate performance and the success of conservation interventions for threatened species, particularly if these species have been prioritized. However, Morrison et al. Wheeler et al. showed that common tools to assess population persistence (i.e., PVA) were often not repeatable nor reproducible, thereby undermining their utility in assessing conservation success.

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A number of the papers also addressed the philosophical elements of the triage debate. Buckley, Buckley illustrates the problem that conservation triage risks signaling to decision-makers that some extinctions or population losses are acceptable, while Woodcock and Hayward introduce a new issue limiting the value of conservation triage in that the opportunity costs of conservation are likely to change in the future and thereby alter the calculations upon which original triage plans are based. As highlighted by the preceding summaries, conservation triage requires an understanding and integration of local contexts. In conservation, decisions are informed by values, need, available funding, etc. but Wilson and Law propose that conservation triage is essentially an ethical decision. The ethical side of hard-nosed economic rationalization to determine which species to allow to go extinct was investigated in two articles. (Wilson and Law) invoke lessons from medical triage to attempt to bring together the proponents and opponents of conservation triage to conclude that a more diverse set of ethics be considered alongside more open communication of objectives and protocols while acknowledging risks is required for conservation triage to become more acceptable. Conversely, Vucetich et al. highlight that the entire basis of conservation triage on medical triage is ill-founded because the latter pre-supposes limited resource availability whereas the resources available for conservation are not fixed. Furthermore, there is acceptance of the moral value

of patients in medical triage, but society does not universally agree on the value of biodiversity, which lead them to conclude that conservation triage is an unhelpful concept (Vucetich et al.).

This Special Issue on *Triage in Conservation* yields examples of where triage can and has worked in conservation. Yet it also highlights practical and ethical problems with the concept of triage. It also offers a route forward to bridge the gap between conservation triage proponents and opponents. The debate around conservation triage remains, but continued communication between protagonists is the only way to move the concept to an appropriate conclusion.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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