Letter

Further comments on the use of interview-based data for species distribution studies: a reply to Petracca & Frair

In their letter, Petracca & Frair (2016) detail several methodological considerations in our examination of whether interview-based surveys produce unreliable results (Caruso et al., 2016). We thank them for pointing out these issues and, by doing so, helping to strengthen our main point.

We agree with most of the methodological concerns that Petracca & Frair raise. We also believe, however, that most of the assumptions we made in our research are common in the conservation literature, especially with respect to species that are rare, cryptic, elusive or otherwise difficult to detect. Robust sampling designs for studying such species frequently require large samples and, consequently, human and monetary resources that are not always available. Thus pooling data from different years is a common practice in occupancy and/or species distribution modelling (Burton et al., 2012; Cuyckens et al., 2014). We also pooled the presence/absence information of the five camera traps at each site, to increase the detection probability of the species per site. By doing so, we aimed to provide a more reliable estimate of the presence status of each species at each site.

Perhaps the most important point, however, is that for the interview-based data we only calculated a naïve occurrence probability (i.e. the proportion of sites in which the species were present, without taking into account detection probability). We did this because our interview sampling was not designed to be analysed within the framework of occupancy modelling, and it was not our intention to estimate occupancy parameters. As we discussed (Caruso et al., 2016), Zeller et al. (2011) and Petracca et al. (2014) have shown, however, that estimating occupancy parameters for interview-based data is possible. Nevertheless, in spite of the fact that it has been shown that the resulting models may not be reliable (e.g. Gu & Swihart, 2004), several studies (e.g. Feijó et al., 2015; Ochoa-Quintero et al., 2015) have modelled species distributions using interview data that did not have sufficient replicates to estimate occupancy parameters.

In conclusion, the main objective of our article was to present a case study in which the presence data obtained by interviews appeared to be insufficiently reliable to elucidate the distribution of certain species, such as some carnivores. Our advice is that researchers should be cautious when drawing conclusions from interview-based data. Thus our main conclusion was not that 'interview data are unreliable' (Petracca & Frair, 2016). Rather, interview data can potentially be skewed in some particular situations, and should be calibrated with other kinds of data, such as from camera trapping. We believe our conclusion offers valuable insights to help improve studies that utilize interview-based data.

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