



Fig. 1. Interaction network of avian frugivores and fruiting plants in Brazil's Atlantic rainforest (Bello et al., 2017). Sampling locations are shown in the inset map (red points). Bird species (34) are represented on the left, and plant species (302) on the right. Blue links represent observed interactions (903), while red links denote the 12 most suitable predicted interactions, identified using machine learning models incorporating phylogenetic, trait, and network structure data (Foster et al., in press). Bird nodes are colored by phylogenetic specificity, measured as z-scores derived from null model standardization. Low z-scores (blue) indicate interactions with phylogenetically conserved plant sets, while high z-scores (red) indicate interactions with more phylogenetically diverse plant partners. Bird nodes are ordered phylogenetically (Jetz et al., 2012). Diet specialization exhibits significant phylogenetic signal across bird taxa (Moran's  $I$ ,  $p > 0.03$ ).