

Mixed-species Flocks Important for Biodiversity Conservation in Tropics

Nowadays, landscapes are being increasingly transformed by anthropogenic activities. Early reports on mixed-species flocks suggested that flocking species are particularly vulnerable to anthropogenic disturbance. However, how and why the flocking phenomenon might influence birds' response to land-use intensity is still unclear.

In a recent study jointly conducted by researchers from CAS Xishuangbanna Tropical Botanical Garden (XTBG), Sri Lanka and India in the Sri Lankan and Western Ghats biological diversity hotspot, the scientists aimed to explore the conservation implications of mixed-species bird groups by examining how mixed-species flocking influenced the response of birds to varying intensities of human land use. They used data from a large-scale study of flocks in Sri Lanka and the Western Ghats of India. The flocks were sampled in three land-use types: inside forest reserves, in buffer areas containing degraded forest or tree plantations, and in agricultural areas.



Orange-billed babbler. (Image: Markus Lilje)



Sri Lanka white-eye. (Image: Guy Poisson)

The study found that the flock system may influence species' sensitivities to land use in one of three ways. Flocking species are particularly sensitive to disturbance, being more exclusive to forest, and flocks outside of forests are particularly important to the forest-preferring birds that remain in these areas. Furthermore, different attendant species prefer different leading species and the leading species may themselves vary in their habitat preferences. The effects of leadership could potentially lead to cascading effects on the attendant species' habitat selection. Finally, forest-interior species, when found outside of forests, have higher propensities to flock relative to other species than when inside forests.

Two nuclear species, the orange-billed babbler and the Sri Lanka white-eye, are the most gregarious species in observed flocks. They are most common in the lowlands and montane regions, respectively, and lead the majority of flocks where they are most common. Observed flocks have more individuals of forest-interior species and fewer open-landscape species than simulated null flocks.

The researchers concluded that mixed-species flocks can serve as targets of conservation policies in tropical countryside landscapes, perhaps not surprisingly given the dominance of flocking as a form of bird behavior in the tropics.

Their study has been published online by the *Proceedings of the Royal Society B: Biological Sciences*.