# [P38] WILD BIRDS IN SOUTH CHINA AGRO-ECOSYSTEMS AND LONG-DISTANCE SPREAD OF H5N1

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Agricultural intensification in South China has increased densities of domestic ducks raised on intensively irrigated paddy fields, an important factor in the persistence of H5N1 highly pathogenic avian influenza virus (HPAIV). Some major wild bird congregating wetlands in South China have been partly turned into paddy fields where millions of free-grazing domestic ducks are raised. This may facilitate the contact and the circulation of avian influenza virus (AIV) between domestic and wild waterfowl, the latter a reservoir of AIV. In this study we combined epidemiological, ecological, agricultural and virological data to investigate the potential role of wild birds in the long-distance spread of H5N1 HPAIV virus from South China. We used new technologies such as satellite-tracking of wild birds, GPS tracking of domestic ducks, remote sensing of irrigated paddy fields, and phylogenetic analysis of H5N1 strains isolated in wild and domestic birds. Our results show that: (i) wild birds share paddy fields, wetlands and AIV strains with free-grazing domestic ducks when wintering in South China, (ii) spring migration of wild birds from South China match spatially and temporally with the long-distance spread of HPAIV H5N1, (iii) epidemiological and virological data support the role of wild birds in this long-distance spread. This study provides evidence of the role of wild birds in the long distance spread of H5N1 AIV from South China agro-ecosystems. It also raises the question of the role of wild birds in the evolution of low and highly pathogenic strains as they introduce new AIV strains in these agro-ecosystems.