

## **Activities of Migratory Birds at Wetlands of Southern Taiwan and their roles in spreading the Avian Influenza**

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We surveyed migratory birds by binoculars at three wetlands in Kaohsiung County, including Yongan salt pan wetland, Fonsan reservoir and Old Railroad Bridge artificial wetland, and monitored wild bird populations in 24 poultry farms close to these wetlands on a monthly basis in 2009. Migratory birds were caught by mist nets and banded. Radio transmitters were attached to birds with high possibility spreading avian flu and radio-telemetry was used to track their activities during their stay at the wetlands. The areas of the poultry farms surveyed ranged from 0.14 ha to 2 ha. The farms can be divided into four types: layer hens, broiler chicken, layer duck and duck farms. In total, 15143 birds within 9 orders, 18 families and 32 species were observed. The most abundant wild bird observed in poultry farms was the sparrow (87.0%), and proportion of all other birds was smaller than 4%. The major behavioral patterns of wild birds observed in the poultry farms were resting (52.1%) and foraging (39.5%), whereas the defecation and flying across farm were much less observed. Risk of transmitting infectious diseases of these resting and foraging birds in the poultry farms is high because of the lengthy stay in the poultry farms. On the other hand, as the migratory birds were much less frequently observed in the poultry farms, the probability of direct infection of bird flu of migrant birds to the poultry is low. However, the Cattle Egret seems to be a high risk species to spread the virus because it was frequently found in the farms. The effects of different bird screen coverage (categorized into full-, half- and non- coverage) of poultry farms on preventing the entering of wild birds were also studied. Comparing farms with full-coverage and non-coverage net, the number of wild bird species entered the farms greatly differed. The total number of wild birds entered in both duck and chicken farms with full-coverage are apparently less than half-covered and non-covered ones. In chicken farms, bird nets prevented most small size birds from entering, yet had little effect on medium or big size birds; in duck farms, bird nets were only effective to medium size birds. The wetland of Old Railroad Bridge contains the most bird species, mainly of family Anatidae. The number of species found at Yongan salt pan wetland ranks second, mainly of the family Ardeidae, Scolopacidae and Charadriidae. Fonsan reservoir wetland has least bird species, and *Phalacrocorax carbo* was the most abundant species. Bird banding was carried out seven times, and 72 birds of 18 species were caught and banded. The results of radio-tracking showed that the range of activities of green-winged teals found at least three wintering places. One is the wetland of Old Railroad Bridge; another is at the flood land of Kaoping River near Pingtung Old Railroad Bridge, and the other is the flood land of Kaoping River near 88 express way. All of these places are located along Kaoping River. No teals were observed coming near any poultry farms and it seems that the possibility of transmitting the avian flu virus through green-winged teals trespassing poultry farms is quite low.