

# The Conservation Status of Birdwing Butterflies in Taiwan

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## Introduction

Two species of birdwing butterflies, *Troides magellanus* C. Felder and *T. aeacus kaguya* Nakahara and Esaki, occur in Taiwan. Females of *T. aeacus kaguya* are easily distinguished by the black median band of the hind wing, which is separated by yellow and black at the veins, whereas in *T. magellanus* the black median band is unbroken. Males of *T. magellanus* are easily recognised by the iridescent blue-green reflections on the yellow area of the hind wings. These blue-green reflections are visible from any oblique direction.



Photo: Yang and Fang

***T. magellanus***



Photo: Yang and Fang

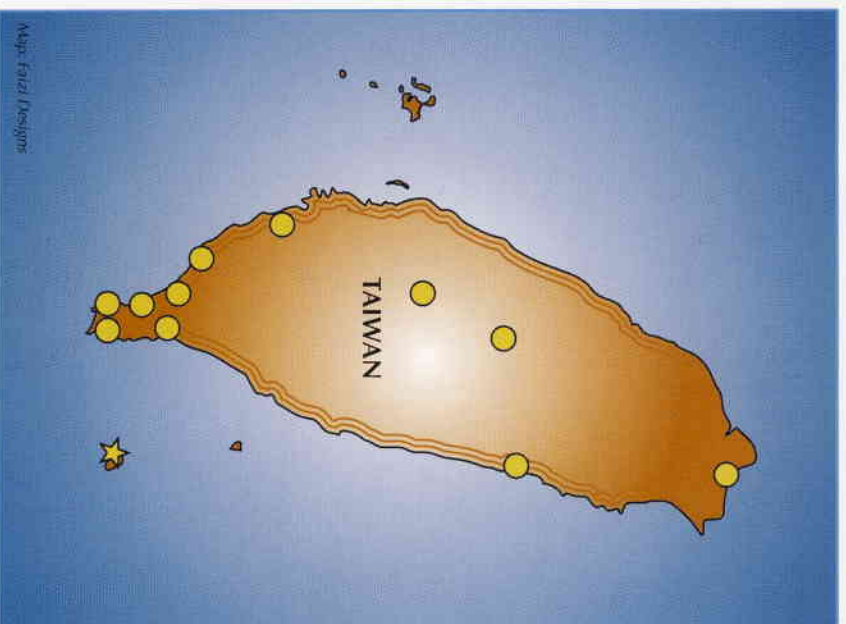
***T. aeacus kaguya***

*T. aeacus kaguya* is distributed in the lowlands around Taiwan, while *T. magellanus* is restricted to Orchid Island, off the coast of southeastern Taiwan. Both birdwing species were protected in Taiwan under the Wildlife Protection Act, in 1989. Because *T. magellanus* is an endangered species on Orchid Island, the Taiwan Endemic Species Research Institute (TESRI) has conducted a study on the butterfly on the island since 1991. This study, a five-year plan to conserve *T. magellanus*, was supported by the Council of Agriculture (COA) and the Provincial Department of Agriculture and Forestry for the period from 1992 to 1997.

### Biology and conservation

*T. magellanus* produces two generations a year. In its life cycle the growth phase from egg to adult is completed in an average of 89 days at 25°C. There are two peaks of adult emergence from April to June and from September to October. Since 1993 we have set up 9 transect lines and 11 sites to monitor adult populations at one-month intervals. Each month the butterflies were counted for four days.

The results showed that *T. magellanus* has declined drastically; in 1993 we counted an average of 10 butterflies per month compared to 1960, when an average of 10 were counted per hour. The major cause of decline in the birdwing butterflies in Taiwan is attributed to habitat deterioration. On Orchid Island, the food plant of *T. magellanus* is *Aristolochia zollingeriana*, which



The distribution of *T. aeacus kaguya* (●) and *T. magellanus* (★) in Taiwan.

has been drastically reduced in abundance by deforestation, animal grazing and road building. Habitat enhancement was our first priority for the conservation of *T. magellanus*. We transplanted 400 food plants to Orchid Island in 1994-1997 but the survival rate was low (30%) owing to drought, sheep grazing and 'ring-cut' by mature caterpillars

of *T. magellanus*, of which the latter was the most serious cause of loss of vines. To protect cultivated food plants, we built a shade house to propagate *A. zollingeriana*. When the food plants grew to a size that resisted the impact of 'ring cut' by larvae, we opened the shade house to allow oviposition by *T. magellanus* to occur.

Since 1998 another three-year project to rehabilitate the population of *T. magellanus* on Orchid Island was started. Efforts were made to estimate the population size of adults by the mark-release-recapture method, and to assess the carrying capacity of *T. magellanus* on the island.