Fruit pigeons need their rainforest

Most of the pigeons that we usually see in Australia are rather drab, but in the rainforest it's different. Australia has 23 pigeon species, and no less than nine of these occur almost exclusively in our diminishing rainforests.

Unlike their counterparts inhabiting drier country, the rainforest pigeons are usually brightly coloured in greens, purples, and reds, or strongly marked in black and white.

They feed exclusively on fruits and seeds and, for this reason, as the rainforests become scarcer so must the pigeons depending on the fruits and seeds within them.

Only a fraction now remains of the rainforests existing when the First Fleet arrived. Sugar cane, bananas, and pastures now grow where forests once stood.

In addition to being cleared for agriculture, rainforests are often used for producing timber, and certainly one would expect that timber-getting operations would have some effect on the birds and animals living there.

In a 3-year study—chiefly in the extensive lowland rainforests that still remain around Mission Beach near Tully—Mr Frank Crome of the CSIRO Division of Wildlife Research has sorted out the ecology of the seven pigeon species that occur there, and deduced how forestry may affect them.

The first questions to be answered, before one can get any idea of how man-made changes affect a bird or animal, are exactly what does it eat, and what conditions does it need to breed? One might expect that competition between rainforest pigeons for food would be particularly intense, since all nine species seem to eat similar food, and they often occur together. Also, one might expect the supply of fruits to be very low at some times of the year. Yet the pigeons do succeed in co-existing.

It turned out that to some extent appearances were deceptive.

Mr Crome found that the pigeon species could be divided into two groups—those that ate only fruits, and those that ate seeds as well. The five depending entirely on fruits—the Wompoo pigeon with its bubbling call, and the purple-crowned, red-crowned, Torres Strait, and topknot pigeons—required the most succulent fruits to survive. Their thin-walled gizzards could not digest the seeds within the fruits.

The remaining two species—the brown and the white-headed pigeons—could digest seeds as well, and thus use the additional food that these can supply. These pigeons can survive on less-succulent fruits, and even dry ones.

Even so, the food supply does vary with the time of year, so the different species must be competing for the fruits. Mr Crome's researches showed that, during the 3-year period of the study, more than 80 plant species provided food. Some or other of these provided fruit during every month of the year, and the pigeons changed their diet accordingly. Nevertheless, the most plentiful supply of food occurred at the end of the dry season and the beginning of the wet.

Mr Crome showed that not only did the different pigeons prefer to eat different fruit, but also many of them tended to live a nomadic existence, moving to places where the food was most abundant. Thus the pressure was kept down on the food supplies, and the non-nomadic species could survive.

But how have Man's activities affected the position? Obviously, if the rainforest is cleared, then the pigeons' food supply goes with it. But what of forestry activities that do not involve clearing?

Mr Crome's studies revealed that many of the fruits preferred by the pigeons are important in the secondary growth that occurs after the forest has been disturbed. Presently used logging procedures stimulate this secondary growth, so in fact, logging operations may be increasing the food supply—to some extent at least—not reducing it.

However, Mr Crome points out that elsewhere in the tropics foresters are experimenting with techniques aimed at increasing the proportion of commercially useful tree species at the expense of those that have little or no commercial value. With few exceptions, the fruit trees used by rainforest pigeons do not have commercial value; so, if such techniques become widely used in our rainforests, these areas will not support many pigeons—or for that matter other fruit-eating birds, such as cassowaries.

Australia's rainforest pigeons. F. H. J. Crome. *Australian Natural History*, 1974, **18**, 17–21.

The ecology of fruit pigeons in tropical northern Queensland. F. H. J. Crome, *Emu*, 1975 (in press).

A young red-crowned pigeon.