



GETTING TO

present in good numbers, are really having a great impact on the pest status of the bush fly. Al fresco eating is now an accepted and enjoyed fact of life, quite different from the days when the Aussie salute was the norm, and most eating was done indoors or in the evening when flies are not active. The biological control of bush flies by dung beetles is one of the great success stories of our times, not much lauded by the public, mainly because the absence of a nuisance is seldom noticed or commented upon. Only when these pesky flies are in our faces are they really noticed.

How we gave them the chop

IN THE MID 1960s the government decided that we were losing out on a lot of tourist dollars because people were not coming to Australia in the summer. So they put some money into the CSIRO to try and solve the problem.

Dick Hughes was appointed to the CSIRO Department of entomology to try and solve the bush fly problem. At the time we didn't know anything about bush flies. We didn't know whether they overwintered here or

MARINA FEEDING HER PETS.



THE MATTER OF THE BOTTOM

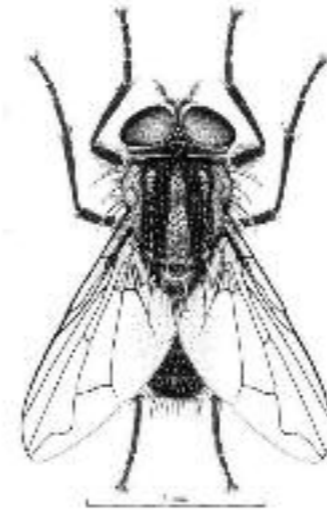
not. Dick had the idea that because they always disappeared in winter that perhaps they didn't overwinter here. Other flies always reappeared on warmer winter days but the bush flies never did.

So we thought perhaps they die out here in the winter but they are surviving somewhere else like up north. I was appointed as his experimental officer and my first job was to find a way of categorising the populations of bush flies. This means establishing the ages of individual flies. You catch a sample and you dissect the lot. Then you can establish the percentage that are newly emerged, those two weeks old, four weeks old or whatever. Each population has a signature age profile.

My first job was to work out how to do that. I worked out a way to dissect them, look at their reproductive organs and see what's happening in the ovaries.

Dick Hughes had the idea of driving to Burke, so one day

THE AUSTRALIAN BUSH FLY.



in October, with no flies in Canberra, we set off on a three-day trip. We'd stop two or three times each day and fry up a chop which we knew attracted flies and we'd stand around with our nets for about 20 minutes to see how many we'd catch.

We caught absolutely none until we got to Burke. We got to Burke late in the afternoon and we caught about 20 flies late in the evening. At midnight we set out our microscopes and dissected our flies.

These flies gave us their signature age profile. The next day due to sheer unadulterated good luck there was warm north westerly wind blowing.

So we hopped in the car early in the morning and started driving south and when we got to 100 km south of Burke we stopped and we caught the same flies. That is, they had the same profile as the ones we caught in Burke. So we stopped every hundred kilometres, each time catching the same flies until we got to Parkes.

It was pretty hard work catching flies by day, dissecting them at midnight while living on a diet of fly-blown chops the whole time.

By the time we got to Canberra there were still no flies there but within a week they had arrived being carried on the wind. As soon as the flies arrived in Canberra we caught some and they had the same signature age distribution as the flies we caught in Burke.

But very soon after that we started to get an influx of new flies, newly emerged flies, ones that have just developed. So as soon as the Burke flies got here they laid their eggs and it was warm enough for the eggs to develop within a week and a fly population just exploded.

These new baby flies are the really hungry ones, they must develop their own eggs and they're desperate to find protein in places like human eyes, noses and mouths.

So as a result of discovering the way the fly population moved and proliferated in the warmer weather, we could feed this information into the dung beetle introduction program that was underway at the same time.



SEINE RIVER, FRANCE

A message from Lesley Lambert to all my dear friends in Braidwood:

**“The time has come where I'd like to exchange the picture below for the one above.”**

NERRIGA ROAD, BRAIDWOOD



- 2-3 bedrooms
- Steel-frame house
- 3-bay garage
- 5 acre block

4842 2074

HOUSE & LAND SALE

# Al Fresco and dung

Marina Tyndale-Biscoe on how flies time

HAVE YOU EVER GIVEN a thought to the influence that dung beetles have on your eating habits? No, not what you eat, but where you eat.

Those of us old enough will surely remember that thirty years ago there were no outdoor cafés or restaurants without insect screens in the cities. It was also a struggle to have a picnic or barbecue in daylight hours during the warmer months of the year.

Walking in the bush or in the paddocks one's back would have hundreds of bush flies sitting on it, and a goodly proportion of them would attempt to get into your eyes or mouth or nostrils. The Aussie salute was well known — in an attempt to keep these pesky insects out of your face.

Have you noticed any difference between the situation now and back then? Canberra, and indeed Braidwood, now have outdoor tables and chairs for eating and drinking and barbecues are not nearly as fly-blown as they used to be. As a result many people now happily sit in the streets and consume food and beverage without being particularly inconvenienced by flies. And the credit for this pleasant change goes to the humble dung beetle.

In the 1960s and 70s CSIRO introduced dung beetles into the district. About six species became established

and now beaver away, scarcely noticed by most people except the dedicated farmers and land care enthusiasts. Newly emerged adult dung beetles suck the juices out of the dung pad. They do not have chewing mouth parts and thus can only live on a liquid diet. When there are lots of them, they will totally dry out a pad, so only dry chaff-like matter remains on the surface of the ground. They ingest this food while developing their own eggs. The resulting dung pad becomes a totally unsuitable environment for the fly larvae which die.

However, our summers are not always totally bush-fly free. Like most biological control agents, beetles work most of the time, but not all the time. They sometimes are a little slow in starting in the spring, giving the flies a bit of an early advantage. Drought affects them, as does soil type. Birds and foxes prey on them.

The chemicals used in drenches and on pastures have a major impact on the survival of beetles and flies, but the flies can bounce back much faster than can the beetles. Thus often there may be a farm/region where beetle numbers have temporarily decreased, allowing flies a clear window of opportunity to breed successfully.

But on the whole, SE Australia is now a whole lot more pleasant during the warmer months, due to the activities of these little beetles which, when