**THE RELATIVE IMPORTANCE OF THE AUSTRALIAN
GREEN BLOWFLY, *LUCILIA CUPRINA* (WIEDEMANN),
AS A FLYSTRIKE BLOWFLY AT A WAIKATO
SHEEP STATION**

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SUMMARY

Blowflies were trapped on a seasonal basis using a liver-based attractant at a northern Waikato sheep station to determine the incidence and relative importance of species present. The species composition was compared with the blowfly species collected from fly struck sheep at the site. The Australian green blowfly, *Lucilia cuprina* (Wiedemann), first appeared at the end of November 1989 and its larvae were also first collected from struck sheep at this time. Although the common green blowfly, *L. sericata* (Meigen), outnumbered *L. cuprina* in trap catches throughout summer, *L. cuprina* was the dominant species reared from fly-struck sheep.

INTRODUCTION

A survey of the incidence of fly-strike and associated blowflies (A. Heath pers. comm.) has shown that the Australian green blowfly, *Lucilia cuprina*, has successfully established throughout the North Island and has recently been found in the northern part of the South Island. These findings have coincided with increased reports of difficulties with control of fly-strike in the North Island. However, three other blowfly species, the common green blowfly, *L. sericata*, the hairy maggot blowfly, *Chrysomya rufifacies* (Macquart), and the brown blowfly, *Calliphora stygia* (Fabricius), are also implicated in fly-strike. The relative importance of all four species, and the particular role of *L. cuprina* must be determined before appropriate control strategies can be implemented. The aim of this study was to compare on a seasonal basis the blowfly species caught in a fly trap with those causing fly-strike at a northern Waikato sheep station.

METHODS

Monitoring of blowfly populations commenced at Limestone Downs, a sheep and cattle station, 40 kms SW of Auckland, in August 1989. Flies were collected using a wind-assisted trap (Vogt *et al* 1985) baited with a mix of homogenised liver and 1.5% sodium sulphide solution in equal proportions by volume (Vogt *et al* 1983). The bait was adsorbed onto a 3 cm thick foam pad to slow the formation of a crust which would reduce its attractiveness to flies. The trap was cleared and the bait changed weekly.

Throughout the season maggot samples from fly-struck sheep were collected when they were encountered during normal stock surveillance. On each occasion as many maggots as practicable were collected while ensuring that stock stress and interference with insecticide treatment were minimised. In total, samples from 10 sheep were collected and reared on chopped liver through to adults for identification. Sheep dipping practices throughout the season were also recorded.

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RESULTS AND DISCUSSION

Trap catches

Blowflies first appeared in the trap in the first week of September (Fig. 1). The brown blowfly, *C. stygia*, dominated trap catches throughout September and October, numbers decreased in January and February, but then increased again at the end of March. *L. sericata* first appeared briefly in mid-September, reappeared in greater numbers towards the end of October and was present throughout the summer comprising about 20% of the total catch. *L. cuprina* was first recorded at Limestone Downs in late November (Fig. 1) and was still present in traps in May. In New South Wales, Australia, *L. cuprina* starts to appear in traps during late September or early October (Vogt and Woodburn 1979). Its appearance is probably dependent on soil temperatures. In cooler areas of Australia, *L. cuprina* overwinters as larvae but in warmer areas adults are present throughout the winter. Overall the Australian blowfly accounted for only 2.3% of the 17,552 blowflies trapped during this study (Table 1), reaching a peak of 8.5% of the total catch in mid-February. In Western Australia *L. cuprina* were dominant in trap catches in October, November and December with a marked decline in January (Monzu 1979). The average maximum daily temperature in January is 30°C in Western Australia compared to 22.5°C at Limestone Downs. The hairy maggot blowfly was first collected in the middle of November and was the dominant species trapped in February and March.

Fly-strike

Although the numbers of *L. cuprina* caught in the trap were low this species accounted for 54.1% of the 1022 blowfly maggots collected at the site (Table 1). It was present as the dominant species from the time it first appeared at the end of November until March, except in mid-February when the hairy maggot only was present in the samples (Fig. 1). Maggot samples, however, were only collected when convenient to the farmer, and some fly-struck animals were missed. The severity of fly-strike would have

Fig. 1: Proportions of the four blowfly species in the total weekly trap catch and in samples from flystruck sheep at Limestone Downs in 1989/90.

TABLE 1: Percentage of each blowfly species in the total trap catch and maggot collection made between September 1989 and mid-April 1990 at Limestone Downs.

% total	Blowfly species				N
	<i>Calliphora stygia</i>	<i>Lucilia cuprina</i>	<i>Lucilia sericata</i>	<i>Chrysomya rufifacies</i>	
trap catch	50.5	2.3	15.2	31.9	17,552
maggot collection	14.7	54.1	30.3	0.9	1,022

been influenced by management practices at the site. Around 70,000 sheep were dipped on the property from September to April with each animal being dipped on average 4-5 times throughout the study. All the sheep were initially dipped over a 4-week period from mid-September to mid-October (Fig. 1) providing protection for up to 6 weeks with individual flocks being treated sporadically throughout the summer when necessary. It is not known whether *L. cuprina* populations in New Zealand are more or less susceptible than the other blowfly species to the dips used on the property.

The predominance of *L. cuprina* collected as maggots from December onwards at Limestone Downs agrees with the findings of a nationwide survey conducted this summer (D. Bishop pers. comm.). By comparison, a 1938 survey (Miller 1939) ranked *C. stygia* as the most important species, occurring in 49% of a total of 150 samples, while *L. sericata* was recorded in 46% of a total of 150 samples. In Australia, *L. sericata* is only of minor importance as a myiasis fly, occurring in about 5% of fly-strike cases compared to 90% for *L. cuprina* (Vogt and Woodburn 1979). *L. sericata* has a strong preference for settled suburban and country town habitats in Australia. *C. stygia*, although a native of Australia, is present in only 5% of fly-strike cases in eastern Australian states and is absent from Western Australia, while the hairy maggot blowfly, present in about 6-7% of cases, is considered to be a secondary species which does not initiate strike (Monzu 1979).

The numbers of adult *L. cuprina* trapped in this study were low. Either *L. cuprina* is not present in high numbers relative to the other flystrike blowflies, or is not as attracted to the bait provided. The low numbers trapped did not reflect the abundance of *L. cuprina* collected as maggots from fly-struck sheep. *L. cuprina* may be more strongly attracted to, or a more effective coloniser of susceptible sheep. This species may also not be as susceptible to the insecticide treatments used. These factors have yet to be determined.

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