

## A city's climate — before and after

Canberra is a foggy city in winter; it's not unknown for politicians to be late for Parliament because their planes haven't been able to land until late in the morning. Usually fogs lift over the city and suburbs earlier than they do over surrounding rural areas in the Canberra basin. The heat that cars, and house and office heaters, pour into the atmosphere is probably the cause of the earlier lifting.

Suburbia and 100 000 people are soon to come to Gungahlin, a rural area just north of today's northern Canberra suburbs. Fogs tend to stay there longer now than they do over the city and suburbs; whether they will continue to do so when the houses, people, and cars come is doubtful. Just what the impact on fogs will be is one of the questions a team from the CSIRO Division of Land

Use Research will be looking at in a long-term study of the effects of Gungahlin's development on local weather patterns.

Heat output is only one of the things about built-up areas that affect the local climate. Others include the ability of materials such as concrete and asphalt to store heat and the influences on air movement of buildings and other structures.

Detailed information on the climatic effects of cities is important to planners wanting, for example, to minimize people's exposure to air pollution or to cold wintry blasts. Probably the best way to obtain this information is to take comprehensive readings in an area throughout the period of its transition from rural to urban.

This is what Dr Margaret Anderson, Dr Jetse Kalma, and Dr Gavin Byrne, of the

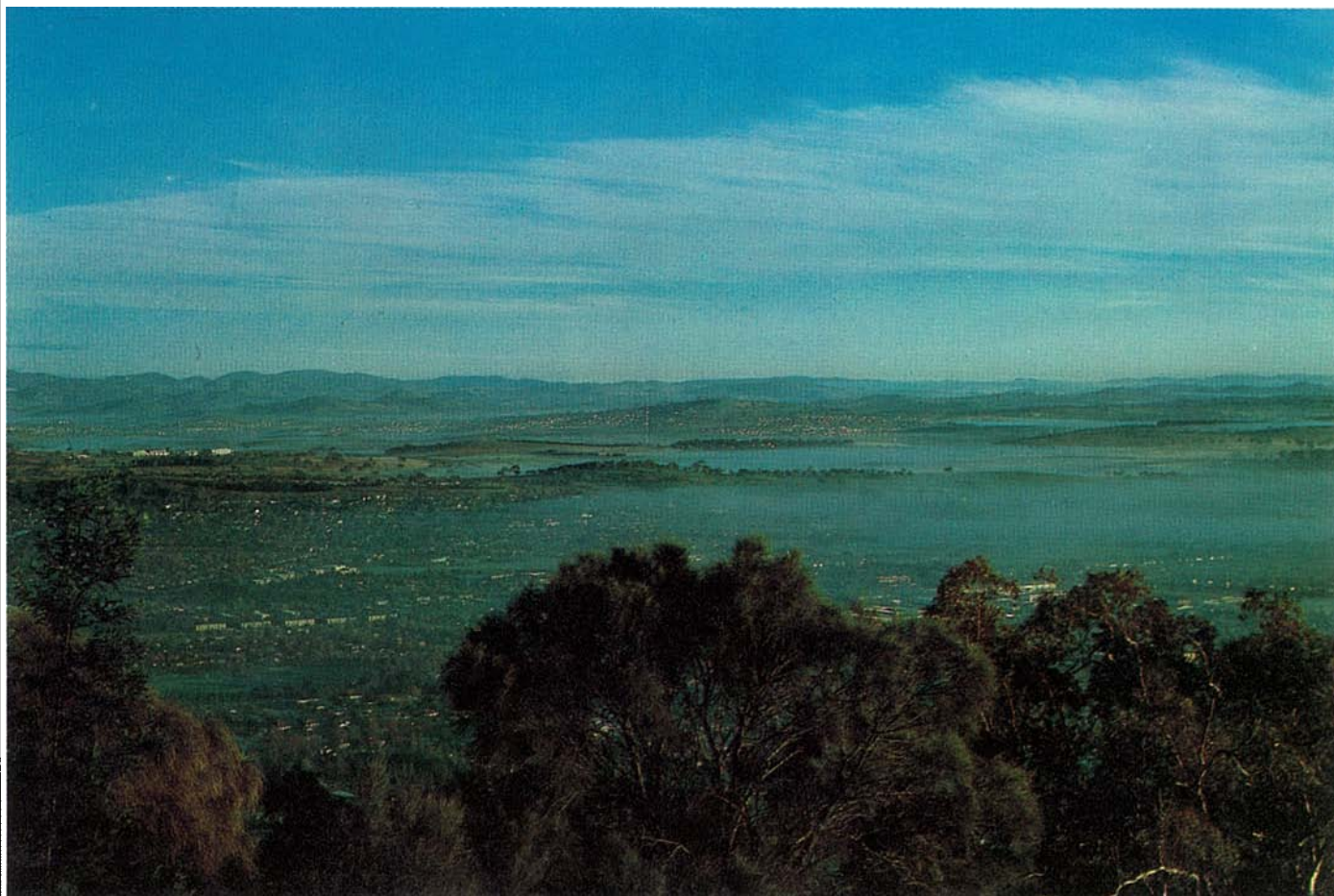
Division of Land Use Research, plan to do over the next 6 years or so at Gungahlin. Construction should start there next year, and the first people will probably move into their houses in 1978.

The National Capital Development Commission, the body that plans Canberra, asked the CSIRO group for meteorological information about the area to help it with the final layout. The NCDC wants to minimize the impact on people of unpleasant features of the climate; for example it is trying to avoid designing channels for cold winds. It asked specifically for details of the fogs, winds, and heat that different parts of Gungahlin are exposed to.

As well as helping the planners, this and other information now being collected will give the scientists the picture they need of the local climate before development takes place.

As the area is bounded by hills and ridges to the north-west, north, and east—and, in general, slopes southwards—just about all outward air movement when conditions are calm is to the south—over northern Canberra and the central business district. This means that air pollution created in Gungahlin is likely to increase the air pollution of central Canberra.

It also means that in calm conditions Gungahlin is fairly well isolated from the climatic effects of the buildings, people, and cars in the rest of Canberra. The fact that for most of the year the dominating winds come from the north-west increases this isolation. As a result Gungahlin, in spite of its proximity to an existing urban area, is providing scientists with an excellent opportunity to watch what urban development does to the local climate.



The fog has lifted over central Canberra, but Gungahlin, in the background, is still fog-bound.