

## SHORT CONTRIBUTIONS

### PRELIMINARY NOTE ON A RAT PLAGUE IN NORTH-WEST QUEENSLAND\*

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In the Mitchell grass, *Astrebla* sp., downs of north-west Queensland, irregular severe droughts cause large losses of sheep. In an effort to prevent these losses, pastoralists have recently begun to grow crops of sweet sorghum, *Sorghum vulgare* Pers., for silage. During 1956, the sorghum crops in some areas were completely destroyed by rats, and the Commonwealth Scientific and Industrial Research Organization was asked to look into the problem. A visit was made in July to a sheep station, "Dundee", about 60 miles south of Richmond, where some of the first crops of sorghum had been grown, and where damage by rats was severe during the current season.

Rats were still plentiful and had been in plague numbers for some months. They occurred around and in the homesteads and station buildings where they were a considerable nuisance and ate everything edible within their reach, including boots and clothing. Vegetable gardens and lawns were eaten out. In addition, the rats were abundant throughout the open Mitchell grass paddocks, far from any direct contact with humans. There they dug short (18 in.) shallow burrows, and occasionally distinct runways were seen between the tussocks. In one paddock a rat burrow was encountered every four or five paces, which represents a density of some 300 burrows per acre, and many were still occupied. The burrows occurred in open patches of soil as well as in the tussocks of Mitchell grass; and in the sorghum paddocks rats were sheltering on the surface in small piles of dead sorghum leaves.

Tremendous damage was caused to the crops of sorghum, which are grown in cultivated paddocks on the open downs. Most of the crops were completely destroyed by the rats, which gnawed through the stems near the base and caused the plants to fall so that it was impossible to harvest them. This damage occurred only a week or two before harvesting was due to begin, and rates of destruction of 16 acres per night have been cited. In the Richmond area alone, about 2000 acres of sorghum were destroyed. A pioneer crop of 230 acres of Belar oats grown on Dundee was badly attacked by the rats, and dead oat leaves which had been bitten off were lying among the stunted plants. The damage to the native Mitchell grass and Flinders grass (*Iseilema* sp.) pastures must be considerable but is as yet impossible to estimate.

Eight specimens of the rats were obtained at Dundee and were identified as *Rattus villosissimus* Waite. This is a native species occupying the sub-arid areas

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of central Australia. It is well known as the "plague rat" of the interior, and is suspected to increase enormously in numbers after good rainy seasons and to undertake long migrations. Finlayson (1939a) has published a detailed account of this species in the Lake Eyre Basin. In another paper (Finlayson 1939b) he discusses plagues of this and other species of murid rodents in central Australia. There seems little doubt that considerable movement of the rats may occur, but so far there are insufficient data on the present plague to determine its direction and extent.

*R. villosissimus* has been described as strictly nocturnal, but under plague conditions at Richmond during winter 1956, they were being caught in large numbers by diurnal birds of prey such as fork-tailed kites, *Milvus migrans* Boddaert, and wedge-tailed eagles, *Uroaëtus audax* Latham. The kites were frequently seen rising from the ground with rats in their talons, and one eagle's nest, with two well-grown nestlings, contained the bodies of eight rats, while the ground below was littered with castings composed solely of rat remains.

*R. villosissimus* is strictly fossorial and appears to be a very poor climber. One small patch of vegetable garden at Dundee was successfully protected from the rats by a 3 ft high netting fence of 1-in. mesh, and the patch contrasted strongly with its bare surroundings. This type of barrier could be used along with poisoning to obtain protection of larger but still relatively restricted areas. Control of the plague as a whole is not yet feasible.

Information on the geographical extent and economic effect of the plague is now being sought. Records of previous plagues and the conditions under which they have occurred are also being collected so that a full assessment of the economic importance of *R. villosissimus* in this region may be made.

#### References

- FINLAYSON, H. (1939a).—On mammals from the Lake Eyre Basin. Part IV. The Monodelphia. *Trans. Roy. Soc. S. Aust.* **63**: 88-118.
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