

## The Distribution of Termites in Ontario after 25 Years<sup>1</sup>

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### Abstract

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The eastern subterranean termite has been present in Ontario for over 25 years. Economic damage caused by the pest was first reported in 1944 and has increased considerably in the last decade, particularly in the Toronto region. Termites have also been found in four other localities in the Province.

### Introduction

The eastern subterranean termite, *Reticulitermes flavipes* (Kollar), is the only species of termite established in Ontario. It has been present in this Province for at least a quarter of a century, but the actual time of its entry is uncertain. Urquhart (1953), in an attempt to establish an authoritative record of the earliest history of the pest in the Province, stated, "It is believed by those who have been actively engaged in the study of insects in the Province of Ontario, and particularly in the vicinity of Toronto, that the termite was introduced into Ontario from the United States between the years 1935 and 1938, and that the point of introduction was in the vicinity of Cherry Street between Keating and Unwin Avenue on the shores of Toronto Bay". Watson (1949) and Watson and Thompson (1958), however, state that termites were previously reported from Ontario in 1929 and again in 1931 when a few specimens were found living free in a natural habitat at Point Pelee in Essex County. In any event, the first report of economic damage resulting from termite activity came from Toronto in 1944, when two private dwellings and the premises of a manufacturing company were structurally weakened.

In recent years the public has become concerned over the destructive potentialities of termites, and the writer has received numerous requests from many localities for information on the present distribution of the pest. This paper, therefore, is an attempt to present in chronological order reports of the insect's spread within the Province as reported in official government surveys and records of various other research and commercial agencies.

### Distribution Surveys

A general survey to determine the extent of termite distribution in southern Ontario was carried out by the Division of Entomology, Canada Department of Agriculture, in 1948 (Watson 1949). About 1,200 spruce bait-stakes were set out in woodlots and timbered areas south of a line connecting Hamilton, Brantford, London, and Sarnia. The entire area from the Niagara Peninsula to the Detroit River was sampled, with the largest number of stakes being allotted to the counties of Essex, Kent, Elgin, and Norfolk, as it was believed that termites would be most likely to occur in the southwestern areas bordering Lake Erie. The bait-stakes were set out in early May and examined in October. No traces of termites or indications of feeding were evident in any of the stakes. Particular attention was paid to 75 stakes planted in Point Pelee National Park, but no damage was noted, nor were any termites found in the summer under logs, or in fallen branches and other wood debris. Also, there were no signs of termites at Hamilton or in the counties of Peel and Halton. In Toronto, however, where an additional 500 bait-stakes were set out, eight distinct areas in the southeastern quarter of the City showed heavy but extremely localized infestations of termites.

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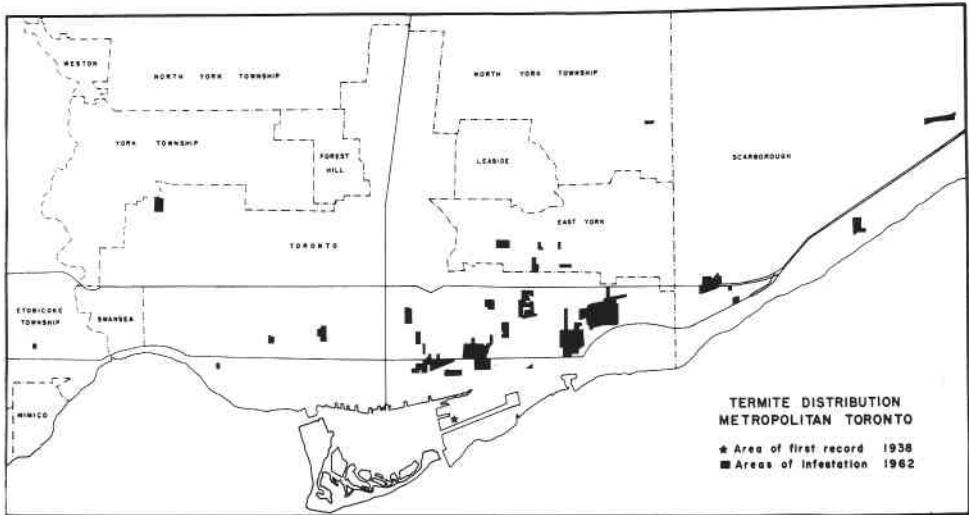


Fig. 1. Locations at which termite infestations were found in Metropolitan Toronto in 1962.

Re-examination of all stakes in September and October 1949, showed practically no change from the previous year, with the exception of an isolated infestation in Scarborough Township, slightly less than two miles east of the nearest outbreak in the city of Toronto.

In 1950, the Division of Plant Protection, Canada Department of Agriculture, confirmed an isolated infestation of termites in a wooden workshop in the city of Windsor, but according to W. R. Lapp (personal communication), the records of this organization do not contain subsequent reports of damage.

The Forest Biology Division, Canada Department of Agriculture, conducted a second survey of the city of Toronto and adjacent areas in Scarborough Township in 1952 to determine whether there had been any new outbreaks or appreciable enlargement of the infested area. Over 630 bait-stakes were set out in April and examined after five months in the soil. Although termite damage to the bait-stakes was evident in the known infested zones, no new outbreaks were reported and only slight extensions were noted in the old infested areas. The sections of the city west of Yonge Street and north of Danforth Avenue were apparently still free of termites.

Termites were collected from beneath a pile of rubbish close to the railway station at Kincardine, Bruce County, in September 1954 (Urquhart 1954), and the following year they were recorded at Oxley, Essex County (C. G. MacNay, personal communication). In 1960, termites were reported infesting a verandah post of a house in Ottawa, but treatment by a commercial control firm apparently eliminated the causal organism before a definite identification was made. There have been no further reports from the Ottawa area except for the interception in 1961 of the swarming stage of termites on cypress slabs supporting potted *Phyllodendron* from Florida. The species, however, was identified as *Reticulitermes virginicus* (Banks); the crating material was immediately burned and the unloading area was sprayed (MacNay, personal communication).

In the past decade, infestations in the Toronto region became sufficiently well established and widespread to cause appreciable civic concern. That termites depreciate the value of property was publicly recognized in Toronto in 1962, when the Court of Revision granted reductions in the assessments of several

infested homes. Accordingly, at the request of the Commissioner of Buildings and Development, City of Toronto, a third survey of the city and metropolitan municipalities was conducted by the Forest Entomology and Pathology Branch, Canada Department of Forestry (Kirby 1963). In addition to areas on the periphery of earlier known infestations, particular attention was concentrated on areas immediately surrounding the locations of over 100 confirmed reports investigated by civic authorities and licensed Pest Control Operators in recent years. Direct examination of buildings, fences, and wood debris, was supplemented by interviews with local residents, and extensive examination of shade trees for termite shelter tubes (Fig. 2). The survey, however, involved limited use of bait-stakes because segments of the populace in several sections of the city were averse to any publicity about termites in their area, and removed and destroyed the stakes. The areas of infestations were marked on a map by city blocks; one positive indication of the presence of termites was sufficient to indicate infestation of the entire block. This system, while not indicating the relative intensity of infestations, defines fairly precisely the boundaries of the infested areas (Fig. 1).

The results of the 1962 survey confirmed the expectations of early workers (Watson 1948; Urquhart 1953) who anticipated that some of the initial isolated infestations might eventually be linked to form one large infestation. The three infestations in the lower Don River area have merged, and the two areas in Ward 8 are almost contiguous. The area of general infestation is no longer restricted to the southeast quarter of the city within the confines of Yonge Street on the west and Danforth Avenue on the north. Infestations were confirmed in all Wards except 3 and 9.

Termites are also present at several points in the Metropolitan municipalities. In Scarborough Township the infestations have intensified and spread eastward to a point about six miles from the Township-City boundary. Several infestations are concentrated in the south central portion of East York Township, and infestations have been confirmed at one location in North York and Etobicoke townships. In the last 25 years, therefore, termites have spread across the Toronto region covering an east-west distance of approximately 18 miles.

In 1963 the survival of termites in the Kincardine area was confirmed when active workers and soldiers were found infesting cedar logs and other wood material along the railroad right-of-way. No attempt was made to delineate the extent of the infestation in the area. In Pelee National Park, however, extensive examination of fallen branches, stakes, and other wood debris again failed to reveal the presence of termites.

Although several reports have appeared periodically in various news media regarding the presence of termites in other areas of the Province, these have not been officially confirmed, and it is believed the foregoing statement outlines the known distribution of termites in Ontario. The spread of the insect, the primary reproductives of which are comparatively long-lived and capable of flight at certain periods in their development, has not been extensive for the period of time the insect has been present in the Province. The pattern of infestation has been one of intensification within limited areas rather than rapid dispersion over large areas. It is expected that the old established infestations, particularly in the Toronto region, will continue to intensify, but the institution of a mandatory building code incorporating "termite resistant" specifications will contribute greatly to lessening the otherwise certain increase in economic damage as redevelopment and new building construction continue.

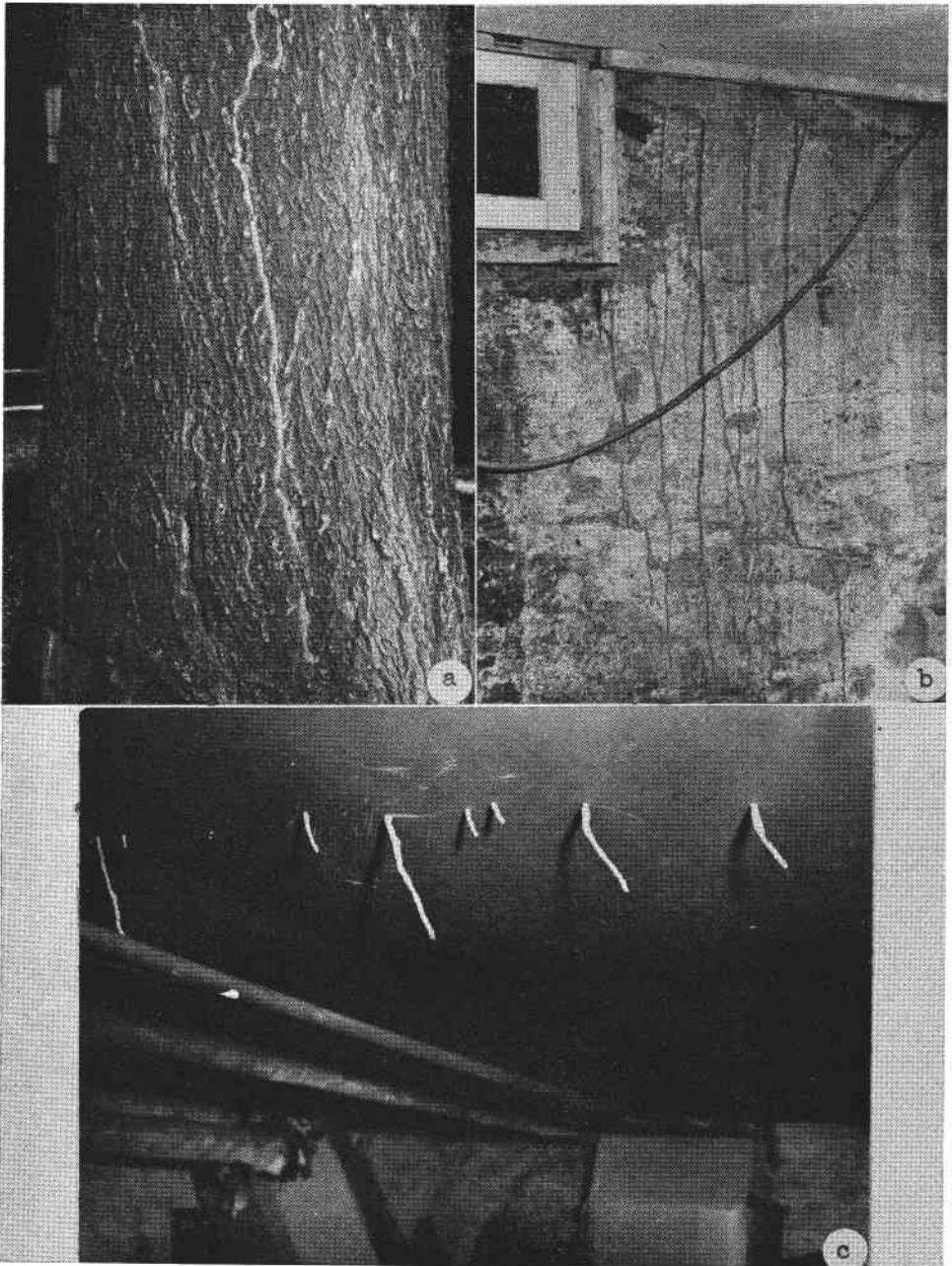


Fig. 2. Indications of well established termite colonies used in conducting surveys of termite distribution. Earthen shelter tubes constructed (a) up the bark crevices of trunk of shade tree, (b) on the interior of a building wall, and (c) from a masonite ceiling.

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## The Effect of Parasitization by *Pimpla turionellae* (L.) on the Emergence from the Pupal Case of its Host, *Galleria mellonella* (L.)

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### Abstract

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Parasitism of pupae of *G. mellonella* (L.) by *P. turionellae* (L.) was found to prevent adult emergence. The effect was manifest within 24 hours of parasitization. Experiments are described which indicated that the source of the factor preventing eclosion of the imago is the developing parasite egg.

Parasitism of one insect by another has stimulated considerable interest amongst entomologists. The studies of Salt (1955, 1956, 1957, 1959, 1960) have demonstrated some of the factors involved in the relationship existing between the ichneumonid parasite *Nemeritis canescens* and a variety of insect hosts. Salt showed that the success of the parasite appeared to depend on the failure of the host haemocytes to encapsulate the parasite. Encapsulation is the normal host reaction to a foreign body in the haemocoel. Salt (1960) believed that the haemocyte response was a surface phenomenon and that failure to encapsulate the