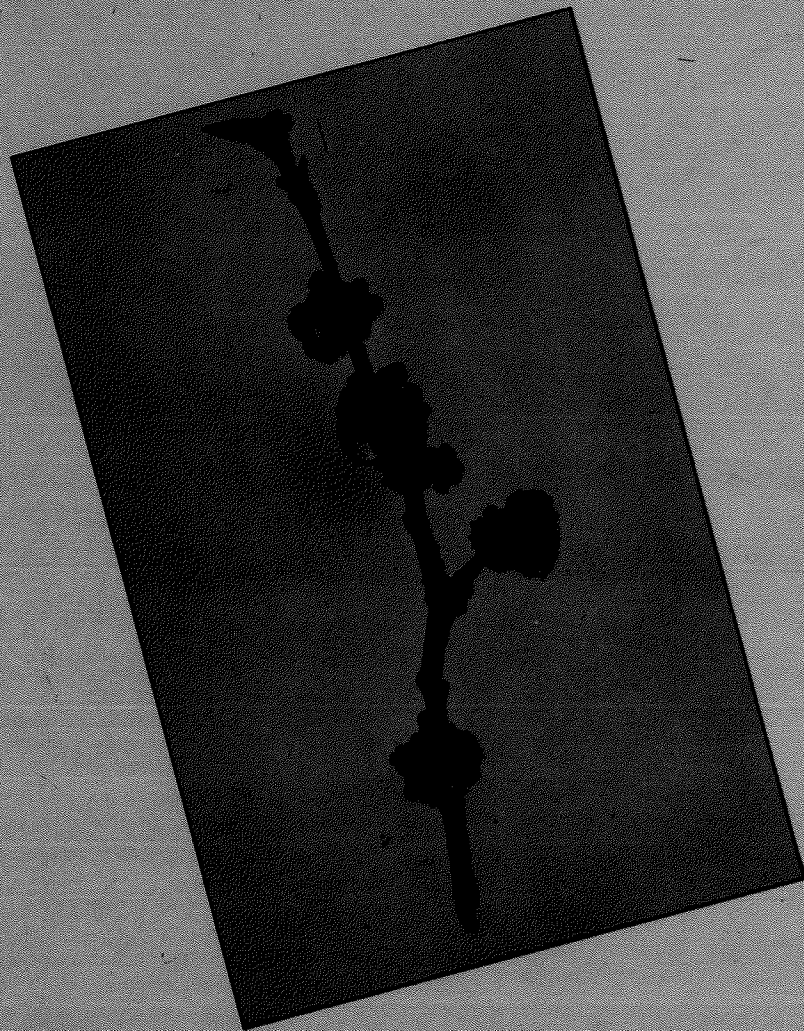




FOREST ENTOMOLOGY AND PATHOLOGY BRANCH



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*of the*

**POPLAR  
BUD-GALL  
MITE**

*by*

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CALGARY, ALBERTA

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HABITS AND CONTROL OF THE POPLAR BUD-GALL MITE,  
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The poplar bud-gall mite is found from California to the Yukon and from Vancouver Island to central Saskatchewan. It attacks many species of poplar including the native trembling aspen, the cottonwoods, and many of the hybrid poplars. In recent years it has caused serious damage to hybrid poplar shelterbelts in southern Alberta.

The mite damages the tree by causing a leaf cluster to be distorted into a compact, deeply convoluted mass. Each gall reduces the numbers of leaf clusters on the tree and after several years of infestation the number of leaves may be reduced by 75 per cent or more. The newly formed galls are dark green, deeply convoluted, hairy and soft. As the season progresses these galls take on a deep red color then harden and fade to a grey-brown by autumn. The following spring new tissue is formed and forces its way out through a crack or is formed at the edge of the gall. If the gall is still inhabited this tissue forms a new section of the gall. It is believed that if no new tissue is formed the mite population of the gall will die. By fall the new tissue will have become hard and indistinguishable from older gall material. This cycle may be

repeated for several years. Occasionally the mite population in a gall will die during the winter and a leaf cluster will form beside the old gall the following year.

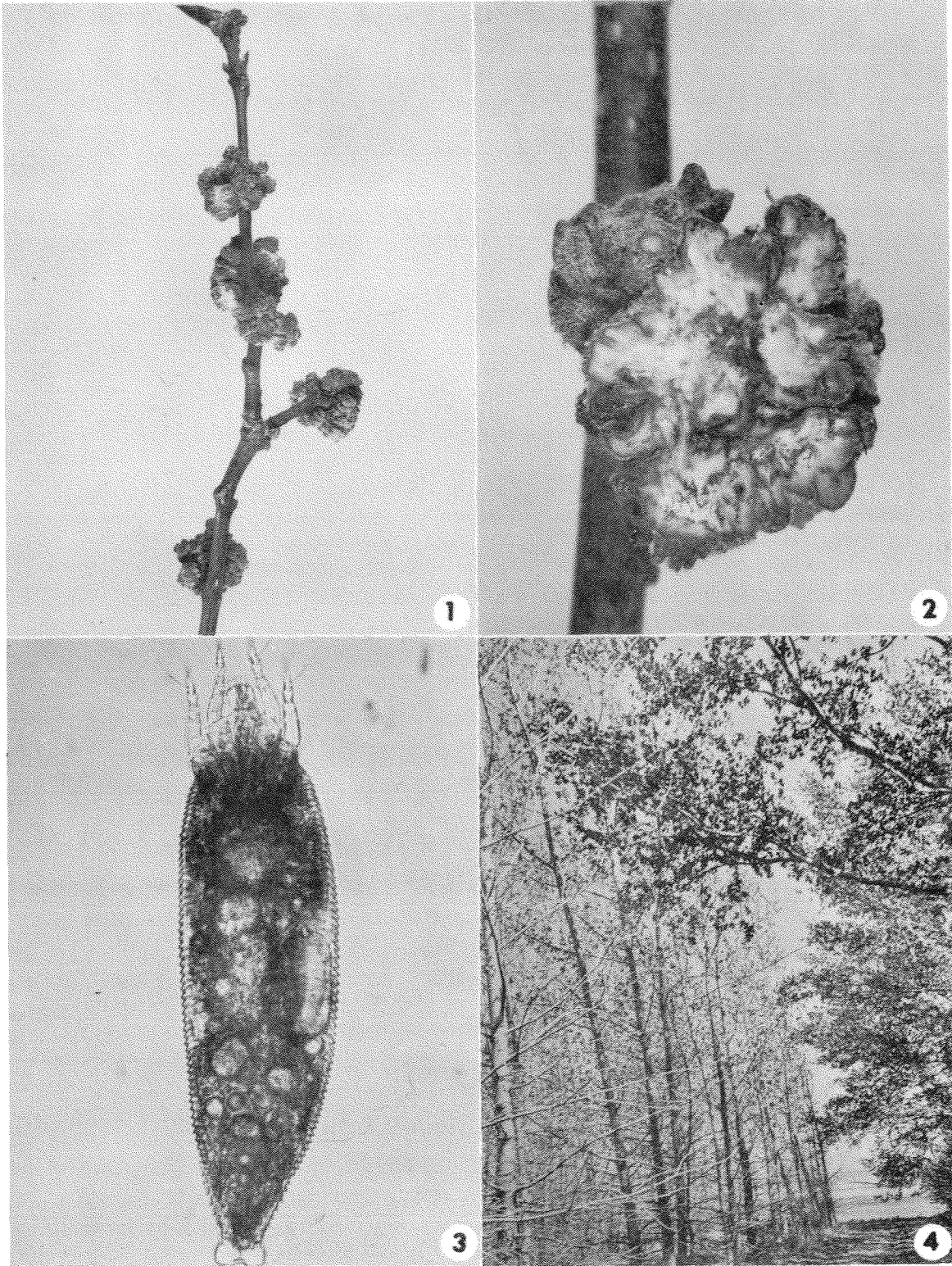
The poplar bud-gall mite is exceedingly small and cannot be seen with the naked eye. The mite is a typical Eriophyid with mouth parts and two pairs of legs all appearing to arise from the front end of their slender bodies. The summer adult is green and closely resembles the color of the tissue in the gall. The overwintering adult mite is brick red in color, remains within the gall over the winter, and begins to feed upon the new tissue formed in the same gall in the spring. It is not known how many generations are produced each year. Early in the summer (about the first week in June at Brooks, Alberta) some of the mite population migrates to newly unfolding buds and new galls are formed. It is not yet known whether there is a distinct migrating generation or if some factor stimulates part of the mite population to leave the old galls. New galls are formed from June to August as new leaf buds unfold.

The mite feeds on the tissues of the galls both on the exterior surface and in pockets within the galls. Many insects and other species of mites are found on or in the galls. Some of these may be predacious and feed upon the poplar bud-gall mite, but many are there because they find the old galls a convenient shelter.

### Control

Because the mite lives within the gall, control by ordinary chemical spray is not effective. It takes several years of mite attack before a tree is sufficiently heavily infested to cause serious damage and the spread of this mite from tree to tree and from shelterbelt to shelterbelt seems to be a relatively slow process. Because the spread is slow the removal of the galls is an effective control measure. On small trees the galls should be removed individually during the late fall, winter or early spring. Since migration to the new gall sites takes place about the first of June in southern Alberta all pruning must be complete by that date. On larger trees individual removal of the galls is impractical and pruning the infected branches is recommended. This pruning should take place during the winter or early spring to minimize shock to the trees. It is important to prune all the infested trees in a shelterbelt the same winter to prevent spread of the mite to newly pruned trees.

There are definite indications that some hybrid poplars are almost completely immune to attack from this species of mite; others show varying degrees of susceptibility. It is possible that after further investigation certain hybrid poplars, which are more resistant to attack, can be recommended for planting in areas where this mite is abundant.



1. Galls on hybrid poplar.
2. Cross-section of a gall.
3. Aceria parapopuli; poplar bud-gall mite.
4. Susceptibility of hybrid poplars; trees on left severely damaged, trees on right very resistant.