

Polymorphism and speciation in the sub-social sawfly *Neodiprion abietis* (Harris).

C.E. Atwood and G. Knerer (Department of Zoology, University of Toronto, Canada)

Summary

Sawflies of the family Diprionidae show a scale of gregarity ranging from species in which the larvae feed in a solitary manner to those in which they form groups of various sizes. The survival value of the "co-operation" of larvae in the highly gregarious forms was pointed out in a paper of the senior author at the IUSSI-Congress, at Pavia 1961. Recent studies of the species (or complex) which has gone under the name *Neodiprion abietis* (Harris) for many years (described in 1840) show that several units can be distinguished. These differ in the following ways:

1. Morphological features of larvae.
2. Feeding habits of larvae.
3. Survival of larvae on various trees.
4. Length of larval development under both natural and constant temperature conditions.
5. Duration of period spent in cocoon.
6. Hatching period of eggs under natural and constant temperature conditions.
7. Morphological features of adult females.
8. Selection of oviposition sites by females, a) Host tree, b) position on tree.

In combination these features form an apparently efficient isolating mechanism in spite of which hybrids can be produced.

The significance of this plasticity is discussed in relation to the evolution and the social habit in Hymenoptera.