

REFERENCES

- Amman, G.D. and L. Safranyik. 1984. Insects of lodgepole pine: impact and control. *In* Lodgepole pine—the species and its management. Baumgartner, D.H., R.G. Krebill, J.T. Arnott and G.F. Weetman (Eds.). Symp. Proc. Wash. State Univ. pp.107–124.
- Cameron, E.A. and R. W. Stark. 1989. Variations in the life cycle of the lodgepole terminal weevil, *Pissodes terminalis* Hopping (Coleoptera: Curculionidae), in California. *Can. Ent.* 121:793–801.
- Drouin, J.A., C.R. Sullivan, S.G. Smith. 1963. Occurrence of *Pissodes terminalis* Hopping (Coleoptera: Curculionidae) *In* Canada: life history, behavior, and cytogenetic identification. *Can. Ent.* 95:70–76.
- Duncan, R. W. 1986. Terminal and root-collar weevils of lodgepole pine. *Pac. For. Centre, Pest Leaflet FPL 73.* 6pp.
- Fontaine, M.S. and J.L. Foltz. 1985. Adult survivorship, fecundity, and factors affecting laboratory oviposition of *Pissodes nemorensis* (Coleoptera: Curculionidae). *Can. Ent.* 117:1575–1578.
- Furniss, R.L. and V.M. Carolin. 1977. *Western Forest Insects.* USDA For. Serv. Misc. Publ. No. 1339. 654 pp.
- Gara, R.I., R.L. Carlson and B.F. Hrutford. 1971. Influence of some physical and host factors on the behavior of the Sitka spruce weevil, *Pissodes sitchensis*, in southwestern Washington. *Ann. Ent. Soc. Amer.* 64:647–671.
- Graham, S.A. 1926. Biology and control of the white-pine weevil, *Pissodes strobi* Peck. *Cornell Agric. Exp. Stn. Bull.* 449. 32 pp.
- Maher, T.F. 1982. The biology and impact of the lodgepole terminal weevil in the Cariboo Forest Region. M.Sc. Thesis, Univ. of British Columbia. 63 pp.
- McMullen, L.H. and S.F. Condrashoff. 1973. Notes on dispersal, longevity and overwintering of adult *Pissodes strobi* (Peck) (Coleoptera: Curculionidae) on Vancouver Island. *J. Entomol. Soc. Brit. Columbia* 70:22–26.
- Ministry of Forests. 1984. *Pest Management Progress.* 3(2):23.
- Stark, R. W. and D.L. Wood. 1964. The biology of *Pissodes terminalis* Hopping (Coleoptera: Curculionidae) in California. *Can. Ent.* 96:1208–1218.
- Stevens, R.E. and J.A.E. Knopf. 1974. Lodgepole terminal weevil in interior lodgepole pine forests. *Environ. Entomol.* 3:998–1002.
- Stevenson, R.E., and J.J. Petty. 1968. Lodgepole terminal weevil, (*Pissodes terminalis* Hopping) in the Alberta/Northwest Territories Region. *Can. Dept. of For. Bi-monthly Res. Notes.* 24:6.

**Note on the occurrence of
Paravespula germanica (Hymenoptera: Vespidae)
in the Lower Fraser Valley of British Columbia**

H.S. GERBER

**B.C. MINISTRY OF AGRICULTURE AND FISHERIES
17720 - 57th AVENUE, SURREY, B.C., V3S 4P9**

The German yellowjacket, *Paravespula germanica* (Fab.), was not known to occur in the Pacific Northwest prior to 1981. The first collections of this wasp were made in 1981 in Nampa, Idaho, and in 1982 in Puyallup, Washington (MacDonald and Akre, 1984). Buckell and Spencer (1950) did not include *P. germanica* in their list of vespids wasps of British Columbia. Akre *et al.* (1989) gave the range of this species in North America.

In the summers of 1984 and 1985, I netted yellowjacket workers in Cloverdale, B.C. and keyed them to *P. germanica* using the key in Akre *et al.* (1980). These wasps were sent to Akre, who confirmed their identity and retained them in the collection of the Washington State University, Pullman.

In 1986 an active nest of *P. germanica* was collected from a shed in Clearbrook. The nest was attached to the rafters and the lower tip touched a ceiling joist, measuring 91 cm long and 46 cm in diameter.

A small, globular (25 cm × 20 cm), active nest of *P. germanica* was collected from the inside of a storage cabinet of a sailboat in Richmond in early September, 1987. The boat had been built and moored there, eliminating the possibility that the nest might have been built while the boat was elsewhere.

Also in October of 1987, a farmer from Clearbrook contacted me concerning a large wasp nest in his barn. The nest was built between 5 cm × 30 cm ceiling joists on 40 cm centers and projected about 45 cm below them. It contained 11 combs, all situated between the ceiling joists. The mass of nesting material projecting below the ceiling joists contained no combs. Many dead wasps inside the nest keyed to *P. germanica*.

In 1988, 2 active nests measuring 25 cm × 25 cm were collected from crawl spaces under houses, 1 on 13 August from Aldergrove, and 1 on 30 August from White Rock. Specimens were also collected from 2 ground nests, on 3 September from North Langley, and on 30 September from Cloverdale. Further collections were made from 3 inaccessible nests: on 22 September from a hole in a wall of a mobile home in Rosedale; on 30 September from the attic of a home in south Langley; and on 5 October from the floor of a sundeck in Steveston.

On 18 July 1989, an active nest measuring 30 cm × 30 cm was taken from a large trunk in a storage shed in White Rock. Further collections were made from 3 inaccessible ground nests and 1 inaccessible nest in an attic as follows: 7 September—Vancouver, 11 and 28 September—Burnaby, and 3 October—south Langley. In addition to the collections reported above, Mr. M. Rabas collected *P. germanica* from Richmond on 10 September 1987 and deposited them in the Spencer Entomological Museum at the University of British Columbia.

P. germanica belongs to a group of wasps that includes *P. pensylvanica* and *P. vulgaris*. It resembles *P. pensylvanica* except that the continuous yellow genal band around the top of the compound eye is interrupted in *P. germanica*. In its behaviour it resembles *P. vulgaris*, being very aggressive and defensive around its nest. Nest and population size approach that of *P. vulgaris*, whereas external nest appearance and grey color resemble that of *P. pensylvanica*. Its scavenging feeding habits, and its selection of man-made structures for nesting sites brings this species in close contact with humans, thus increasing the potential for wasp stings, which are considered to be a nuisance or even a public health threat.

ACKNOWLEDGEMENT

I thank Dr. Roger D. Akre, Washington State University, Pullman, for criticizing the manuscript.

REFERENCES

- Akre, R.D., A. Greene, J.F. MacDonald, P.J. Landolt, and H.G. Davis. 1980. Yellowjackets of America North of Mexico. U.S. Department of Agriculture, Agriculture Handbook No. 552, 102 pp.
- Akre, R.D., C. Ramsay, A. Grable, C. Baird, and A. Stanford. 1989. Additional range extension by the German yellowjacket, *Paravespula germanica* (Fabricius), in North America (Hymenoptera: Vespidae). Pan-Pacific Ent. 65(1):79-88.
- Buckell, E.R. and G.J. Spencer. 1950. The social wasps (Vespidae) of British Columbia. Proc. Ent. Soc. of British Columbia, 46:33-40.
- MacDonald, J.F. and R.D. Akre. 1984. Range extension and emergence of subterranean nesting by the German yellowjacket, *Vespula germanica*, in North America (Hymenoptera: Vespidae). Ent. News 95(1):5-8.