U. trava (Nebeker and Gaufin)

Akolkolex Cr., at Columbia R., 460 m, 24.ii.1980 (J.G. Woods); Beatty L., 31.vii.1977 (DBD); MPP, Lightning Lakes, beside open section of lake, 1220 m, 18.ii.1983 (SGC); MPP, Similkameen R., at Chuwanten Cr., 1.iii.1981 (SGC); *ibid.*, near park headquarters, 1190 m, 11.ii.1979 (SGC), 14.ii.1982 (SGC, R&LM), 6.iii.1983 (SGC); *ibid.*, near Pasayten R., 20.ii.1982 (SGC); Mount Robson Provincial Park, Kinney L., 985 m, 9.vi.1979 (DBD); Mount Robson Provincial Park, Yellowhead Lake, 1104 m, 23.v.1976 (DBD); Similkameen R., at Bromley Provincial Park, 19.iii.1982 (SGC); *ibid.*, Keremeos, 19.iii.1982 (SGC); *ibid.*, Princeton, 19.iii.1982 (SGC); *ibid.*, 2 km below Similkameen Falls, 20.ii.1982, 19.iii.1982 (SGC).

These are the first detailed records for the province, although Donald and Anderson (1980) and Donald and Patriquin (1983) used British Columbia records in analyses of lentic stoneflies. These records extend the known distribution into the Cascade Mountains. Baumann *et al.* (1977) give the range as the Canadian and Northern Rocky Mountains (north to Banff); Dosdall and Lemkuhl (1979) and Flannagan and Cobb (1983) extended it onto the Canadian Great Plains.

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CHALCIDOIDS (HYMENOPTERA) REARED FROM *ARTEMISIA TRIDENTATA* (ASTERACEAE) GALLS IN BRITISH COLUMBIA, CANADA

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While on a collecting trip in British Columbia (Canada), I took 39 stem galls from sagebrush, *Artemisia tridentata* (Nuttall) (Asteraceae). Four chalcidoid spp. (Hymenoptera) emerged from the galls, representing four families. This paper reports the times of emergence after collection, diameter and location of exit holes and wasp's lifespans.

The galls were collected along a roadside, 15 kms NW of Lower Nicola, B.C., on 22 June 1988 and placed in 35 ml plastic cups. The ovate galls were located mostly on the basal two-thirds of the shoots. Sixteen of the reared galls (41%) produced chalcidoids. The galls, which were kept at room temperature were observed daily and were not moistened, to prevent the

spread of fungi. No food was provided to the wasps. The maximum lengths and widths to it (= width) were measured for the 14 galls from which insects emerged. They averaged 12.1 mm long (sd = 2.8, range = 9-18) and 7.7 mm wide (sd = 2.4, range = 7-12). All galls were dissected 211 days after collection; which was 180 days after the last emergence. The dissected galls were examined for remains of insect associates within the gall. Puparia, or their remains, possibly of tephridids were found inside most galls. For each taxon, only the ranges for parameters are given because of the small sample size. The specimens, labelled VOUCHER SPECIMEN, are deposited in the Systematic Entomology Laboratory (Beltsville, MD, USA).

***Torymus citripes* (Huber) (Torymidae)**

Sample size: two males, five females. Time of emergence: males, 11 and 14 days; females, 3 to 14. In five cases the emergence hole was located at the apical third (one male emerged at the very apex); two cases with no gall association. Exit hole diameter varied from 0.72 to over 1.85 mm; most within 1 - 2 mm. Lifespan, males three to four days; females three to six. This wasp is widespread in western North America, reported in association with *Helianthus lenticularis* (Compositae) and parasitizes the tephritid flies, *Euaresta bullans* (Wied.), *Eutreta diana* (O. S.), and *Gymnocarena tricolor* (Doane) (Krombein *et al.* 1979).

Two dwarf males emerged and they appear to be conspecific (Grisell, *pers. comm.*); their data as follows: time of emergence, 11 and 14 days; emergence hole at apex, diameter range, 1.05 - 1.14 mm; lifespan, two to three days.

***Eurytoma* sp. (Eurytomidae)**

Sample size: one male, four females. Time of emergence: male, 15 days; females 9 to 14. In all cases, the emergence hole was located at the apical third (one female emerged at the very apex). Exit hole diameter range: females 0.66 to over 1.54 mm; male, 0.43 mm. Lifespan, male two days; females four to seven. .LP *Eupelmus* sp. (Eupelmidae)
Sample size: one female. Time of emergence, 27 days; emerged at apical third apex. Exit hole, 0.54 mm. Lifespan, five days.

***Sympiesis* sp. (?) (Eulophidae)**

Sample size: one male (?). The gall has a large, (≥ 4.13 mm) orifice (apparently emergence hole of the gall former) located at the apical third. Lifespan, 15 days.

Several species of torymids, eupelmids, pteromalids, platygasterids and encyrtids (Hymenoptera) have been reared from galls of *A. tridentata* (Jones *et al.* 1983). Although often torymids are ectoparasites of gall forming insects in the Cecidomyiidae and the Tephritidae (Diptera) (Yoshimoto 1984), their biologies can not be inferred without more extensive and detailed observations (Grisell 1988). One species, *Torymus aeneoscapus* Huber, has been determined to be a parasitoid of gall-forming midges in Idaho (Jones *et al.* 1983). All of the insects herein reported are new insect association records for *A. tridentata* for British Columbia.

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