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OBSERVATIONS OF SELECTED TRUE BUGS
(HEMIPTERA: HETEROPTERA) OF THE
PACIFIC NORTHWEST SHRUB-STEPPE ZONE

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Key words: Pacific Northwest, Hemiptera, Heteroptera, Miridae, Labops, Myrmecophyes, Tingidae, Acalypta, host plants.

The shrub-steppe zone of the Pacific Northwest extends over a vast interior region. Bailey (1998) published a broadscale treatment of the ecoregions of the world, complete with a detailed map. Much of western North America is included in the Temperate Steppe Division, Temperate Steppe Regime Mountains, and the Temperate Desert Division. Houghton (1986) provided an account of the Great Basin that includes parts of California, Idaho, Nevada, Oregon, and Utah. Franklin and Dyrness (1988) included the Columbia Basin, the High Lava Plains, the Owyhee Upland, and the Basin and Range as physiographic and geological provinces of Oregon and Washington. Thorson et al. (2003) published a detailed map of the ecoregions of Oregon where most of eastern Oregon was encompassed in the Columbia Plateau, Blue Mountains, Cascades Slopes and Foothills, and northern Basin and Range. The Columbia River basin includes portions of Idaho, California, Nevada, and Oregon (Lattin 1995).

A number of plants in the Pacific Northwest shrub-steppe zone respond early in the season when moisture is limited. Early season temperatures, near freezing at night and in early morning, warm gradually as the season progresses. Insects adapted to feed on such plants must cope with the lower temperatures and respond to the early pulse of new growth. Knowledge of insects characteristic of shrub-steppe habitats is still rather sparse, even though these organisms surely exhibit greater species diversity than any other group in this region. Many plant taxa are broadly distributed in this zone (Franklin and Dyrness 1988), for example,

Artemesia and *Purshia*. While little is known about the distribution and habits of most insects and mites found on these plants, Kraft (1960) cited more than 250 species he collected on bitterbrush, *Purshia tridentata* (Pursh.) DC., in portions of the shrub-steppe in the Pacific Northwest during 1957 and 1958. Lattin (1995) estimated that 30 families, 163 genera, and 307 species of true bugs (Hemiptera: Heteroptera) occurred in the Columbia River basin area encompassing several states and extensive areas of shrub-steppe habitats. The variety of introduced plants (accidental and deliberate) has adversely affected native plants, while some have been colonized and injured by native bug species, for example, black grass bugs on introduced *Agropyron* species.

Many species of true bugs use these early maturing plants. Since they often occur before most field work begins, several species of true bugs remain to be discovered. Some of these species belong to genera that are also represented in Central Asia but are represented only by a single species in northwestern North America. Two of the species reported here are found in both regions.

MIRIDAE

Several genera of plant bugs found in the shrub-steppe contain species that are adapted to plants that mature in early spring. The first occurrence of the Old World mirid genus *Myrmecophyes* Fieber in North America was based upon specimens collected in eastern Oregon (Schuh and Lattin 1980). This minute

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but striking insect (Fig. 1) was found on early maturing native grasses near the city of Burns. Whereas some Old World species of this genus occur as short- and long-winged individuals (Drapolyuk 1989), only short-winged specimens of *M. oregonensis* Schuh and Lattin have been collected. Known only from eastern Oregon, it is likely to be found at other localities in western North America.

The plant bug genus *Labops* Burmeister is found throughout the upper portions of the northern hemisphere, with representation in northeastern Siberia and northwestern North America (Slater 1954). Eight species are found in North America whereas 1 species, *L. burmeisteri* Stål, occurs in northwestern Canada, Alaska, and Siberia. *Labops tumidifrons* Knight (Fig. 2) is widely distributed in western Canada and portions of the United States but is known only from a few localities. In central Oregon near LaPine, numerous specimens were taken on *Carex douglasii* Boott in a moist habitat among scattered lodgepole pine (*Pinus contorta* Dougl. ex. Loud.). The nearest previously known locality was Chilcotin, British Columbia, hundreds of kilometers to the north.

Labops species native to North America are of special interest because several have become serious pests on range grasses, particularly non-native crested wheatgrasses introduced for range improvement (Lattin et al. 1994, 1995). It is not surprising that native *Labops* species moved onto these grasses, because at least 1 *Labops* species feeds on crested wheatgrasses in Central Asia where these grasses are native. Review of the literature before the introduction of crested wheatgrasses to North America would have disclosed that host association, perhaps influencing the decision to introduce the plants.

TINGIDAE

Acalypta cooleyi Drake (Fig. 3) is a small lace bug belonging to a genus found throughout the north temperate region (Drake and Lattin 1963, Golub 1973, Froeschner 1976). Where known, the various *Acalypta* species are found on mosses (Drake and Lattin 1963, Froeschner 1976, Scudder 1997). It was a surprise to find specimens of *A. cooleyi* in eastern Oregon near Burns. However, a moss, *Tortula ruralis* (Hedw.) Gaertn. et al., does occur around the bases of shrubs in the area. The lace bug was

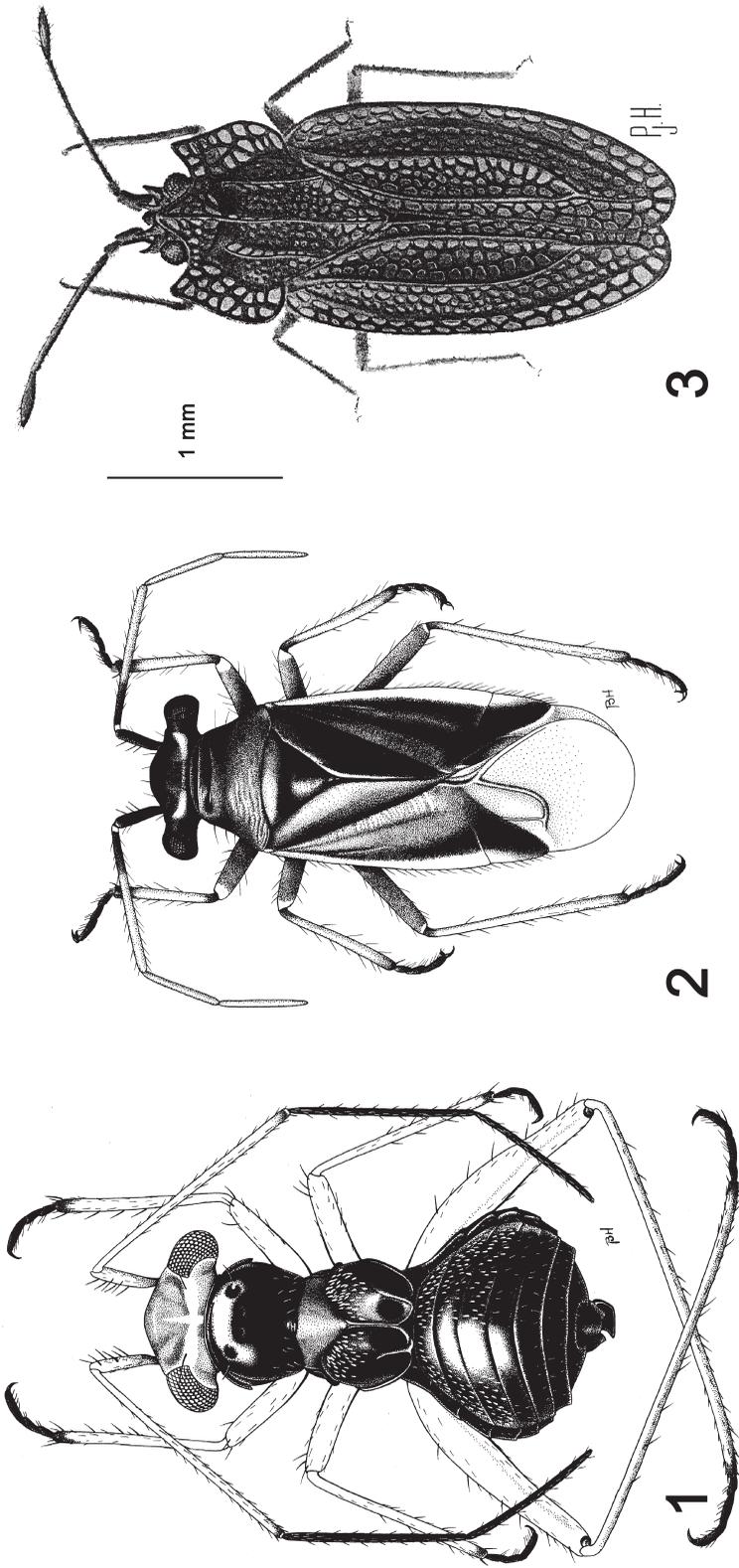
described from Bozeman, Montana, by Drake (1917). Drake and Lattin (1963) reported it from Pinehurst, Oregon, and Sequoia National Forest, California; Froeschner (1976) recorded it near Holbrook, Arizona; and Scudder (1997) reported it from the Yukon. Golub (1973) cited this species from Irkutsk, Kazakhstan, and the Amur district of Central Asia. These latter records extend the range of *A. cooleyi* considerably and demonstrate some of the close faunal relationships between the Pacific Northwest and Siberia. Another example is the recently reported Palearctic anthocorid *Scoloposcellis pulchella pulchella* (Zetterstedt) from east central Alaska (Lattin 2005).

Extensive grazing of cattle has also affected the native fauna and flora. The insect species discussed here are examples of the nonnative introductions to North America. Many more are certain to be found. Better knowledge of various insect species, their host plants, and distributions will be valuable to those responsible for long-term management of these important plant resources.

CONCLUSIONS

The true bug fauna (Hemiptera: Heteroptera), estimated at 800 species (Lattin unpublished data), is well represented in the Pacific Northwest. While occurrence and distribution of many of these species are well known for the mesic portions of this vast region, relatively little is known about many of the bugs in the drier shrub-steppe zone. Except for works by Kraft (1960) and Lattin (1995), there is much to learn about the bug fauna of this zone. Several interesting species found in the shrub-steppe zone are presented here. Two of these also occur in the eastern Palearctic Region of the Old World, indicating faunal similarities between these 2 areas. Much of western North America has been affected by agriculture and grazing, and better knowledge of the insect fauna will be important in reaching reasonable solutions to land management.

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Figs. 1-3. Selected true bugs of the Pacific Northwest shrub-steppe zone: 1. Adult *Mjrenocophyes oregonensis* Schuh and Lattin; 2. Adult *Labops timidifrons* Knight; 3. Adult *Aclypta cooleyi* Drake (after Drake and Lattin 1963).

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