

NOTE

Pineus boernerii Annand (Homoptera: Adelgidae): A New or
Another Record from The People's Republic of China?

While sampling pine plantations in Liaoning Province in northeastern China during 1982, I discovered two infestations of *Pineus boernerii* Annand (Homoptera: Adelgidae) previously recorded only from Formosa, New Zealand and the United States (see Annand, P.N. 1928, A Contribution Toward a Monograph of the Adelginae (Phylloxeridae) of North America). Specimens that I collected on May 13 from *Pinus tabulaeformis* Carr. at Zheng Chio (123°40'E, 41°15'N) and on May 18 from *Pinus thunbergiana* Franco at Luta (121°40'E, 39°00'N) are identical to ones I collected in the United States during 1981 and 1982 from dying *Pinus resinosa* Ait. throughout southern New England (McClure, M. S. 1982, Ann. Entomol. Soc. Amer. 75: 150-157) and from *P. thunbergiana* and *P. densiflora* Sieb. and Zucc. in Connecticut (McClure, M.S. unpublished data). My studies in Connecticut suggested that this adelgid was introduced into the eastern United States and revealed that it can injure and kill *P. resinosa* (McClure, M. S. 1982, see above).

The sampling sites in Liaoning Province, China were pure stands of 15-year-old pines. I examined four branches each in the lower crown of five trees at both plantations and counted the number of adelgids, living and dead, occurring on 50 cm² of three-year-old growth of each branch. The number of nymphs which had died during winter (these remain firmly affixed to the branch) was compared with the number of living individuals to determine percent overwinter mortality.

All 10 trees were infested with *P. boernerii*. Mean number ($\pm$ one SD) of living adelgids per 50 cm² of branch was 42.0 ± 7.9 at Zheng Chio and 10.0 ± 1.6 at Luta. All living adelgids ($n = 260$) were either fourth instar nymphs or adults. Hundreds of eggs of *P. boernerii* were also present on each branch because adults were ovipositing when samples were taken. Mean ($\pm$ one SD) percent mortality incurred by nymphs during winter was high at Luta (76.6 ± 2.4) and even higher at the northernmost sampling site, Zheng Chio (97.2 ± 2.8) where the average length of the frost-free season is only 160 days and where minimum winter temperature sometimes reaches -23°C .

I argued in a previous paper (McClure, M.S. 1982, see above) that *P. boernerii*, first described by Annand (1928, see above) from *Pinus radiata* Don in California, is probably the same species as *Pineus laevis* described by Maskell (1885, Trans. New Zealand Inst. 17: 13-19) as *Kermaphis pini* var. *laevis* from three exotic pines in New Zealand. In their recent checklist of forest insects of China, Yang and Wu (1981, A Checklist of the Forest Insects of China) also consider *P. boernerii* to be the same as *P. laevis*. Regardless of whether or not these names are synonyms, it is certainly reasonable to suspect that the adelgid which I collected in northeastern China in 1982 is the same as the one collected in May 1935 on pines in Shanghai (121°35'E, 31°20'N) and in Wenling (121°20'E, 28°20'N), Zhejiang Province, China and subsequently identified as *P. laevis* (Maskell) by Takahashi (1937, Trans. Natur. Hist. Soc. Formosa 27: 11-14) and the unidentified *Pineus* illustrated in

Handbook of Forest Insect Pests in Northeast China (1974). Indeed, the morphological features of the adelgids which I collected from southern New England and from Liaoning Province, China closely conform to the detailed descriptions and drawings of Takahashi (1937, see above). Unless Takahashi's 1935 specimens are examined it will remain uncertain whether my discovery represents a new or another record of *P. boernerii* in The People's Republic of China.

I conducted this study while serving as a member of the United States Integrated Pest Management Delegation to The People's Republic of China. The trip, made under the auspices of the Science and Technology agreement between the two countries was jointly funded by the U.S. Department of Agriculture, Office of International Cooperation and Development and the Chinese Ministry of Forestry. I am grateful to my travel companions Drs. D. L. Dahlsten, G. L. DeBarr and R. L. Hedden for their help and support throughout the study.

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NOTE

Notes on a Hilltop Aggregation of *Lytta magister* Horn (Coleoptera: Meloidae)

On 22 March 1983 I was ascending a lava ridge (ca. 620 m elevation) W of the headquarters area at Organ Pipe Cactus National Monument, Pima County, Arizona. At about 09:30, just below the E side of the ridge crest, I encountered a small aggregation of *Lytta magister* Horn on and around a flowering brittlebush (*Encelia frutescens* Gray). Within 1 m radius around the bush I found 3 pairs of *Lytta magister* in copulo, and an additional 8 single males. All beetles were relatively inactive when I first located them, but 2 (one male in copulo and a single male) were feeding on encelia petals. Encelia petals, when offered to 3 other single males, were eaten entirely. In the next 30 min several other individuals began feeding on encelia petals, and single males were twice observed to attempt mounting when encountering other males. A check of adjacent encelia bushes revealed several other single males, but no massive aggregation was found. I failed to find other *Lytta magister* aggregations on encelia located lower on the surrounding slopes. Based on the pairs found and the behavior of single males when encountering other conspecifics, it appears the aggregation existed for mating and reproductive purposes, and the aggregation centered around ridge-top encelia bushes.

It has been suggested that hilltop aggregations evolved due to the dispersed distribution of one or both sexes in space and time. Both sexes seek out landmarks or landmark resources, effectively increasing the probability of encountering a member of the opposite sex, and thereby increasing their potential lifetime re-



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