Alternative host plants for adults of *Euphyllobiomorphus kurosawai* Morimoto (Coleoptera, Curculionidae, Entiminae), endemic to Yakushima Island, off of southern Kyushu, Japan

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Abstract Two coniferous trees, *Tsuga sieboldii* and *Abies firma*, both belonging to the family Pinaceae, are recorded for the first time as alternative host plants for adults of *Euphyllobiomorphus kurosawai* Morimoto, 1962 in addition to the previously known hosts of *Cryptomeria japonica* and *Juniperus chinensis* var. *sargentii* of the family Cupressaceae.

Host and refuge/alternative plants of weevils were listed by Colonnelli & Osella (1998) for the first time. These latter plants were used by the species, mainly by adults, as feeding resources when the usual hosts were not available and are unusual weevil-plant associations.

An entimine weevil, Euphyllobiomorphus kurosawai Morimoto, 1962 is one of the most representative insect species on Yakushima Island, which is a World Natural Heritage site in Japan, since the species is not only endemic to the island but also is a sole representative of the monotypic genus. The weevil is very unique with an exceptionally long, cylindrical rostrum as in the long-nosed weevils (Phanelognatha) in the broad-nosed weevil subfamily Entiminae, and is currently the southernmost representative of the tribe Phyllonini in Japan (Morimoto & Kojima, 1994; Morimoto et al., 2006). This species has been known to feed on Japanese cedar, Cryptomeria japonica (Sugi in Japanese ; Cupressaceae) (Morimoto et al., 2006). Recently, we reported the association of this weevil with another conifer, Sargent's juniper, Juniperus chinensis var. sargentii (Miyamabyakushin in Japanese; Cupressaceae) (Kojima & Yôro, 2019). During a recent trekking of Yakushima's mountains in July, the senior author found many individuals of this species by hand shaking of such coniferous tree branches as the Japanese hemlock, Tsuga sieboldii and the Japanese fir, Abies firma (Pinaceae; Tsuga and Momi in Japanese, respectively) near the Ishizuka-goya hut, ca. 1km east of Hananoego of the highland marsh. These trees stood next to a Japanese cedar, from which a few adults were found in addition to ones from the Japanese hemlock and fir. The following record was based on senior author's field observation and adult weevils were released without capturing. Nearly 10 adults fell on a circular beating tray (60cm in diameter) from the Japanese hemlock and fir stands by shaking a few of the lower branches, about 170~200cm from ground level. Only a few adults fell from the adjacent Japanese cedar despite repeated hand shaking of the branches. Adults of this weevil emerged from March to May in lowland planted forests, and from May or June to July in mountainous areas according to personal collecting data from the Kyushu University Museum (Kojima, unpublished data). These data suggest that the adult occurrence at this time (July 15th) was of a late stage emergence for this species. During that time, other coniferous tress such as the Japanese hemlock and fir might be utilized by adults as alternative or refuge plants in place of the usual/primary host, the Japanese cedar.

In addition to the Sargent's juniper, we herein add for the first time the Japanese hemlock and fir



Figs. 1-3. Habitat of *Euphyllobiomorphus kurosawai* near Ishizuka-goya hut (ca. 1,600m in altitude). 1, Vegetation (a: *Cryptomeria japonica;* b: *Abies firma;* c: *Tsuga sieboldii*); 2, *Tsuga sieboldii* (triangular mark shows collecting site); 3, *Abies firma* (triangular mark shows collecting site).

as alternative adult hosts of *Euphyllobiomorphus kurosawai*. The occurrences of these coniferous trees, including the Japanese cedar, on Yakushima Island representing the southernmost distributional records and correspond with the occurrence of a *Euphyllobiomorphus* weevil, representing the southernmost species of the tribe Phyllobini in Japan. Also, it has become apparent that the weevil utilizes not only the plant family Cupressaceae but also the Pinaceae.

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要 約

小島弘昭・養老孟司:屋久島固有のアオクチナガヒゲボソゾウムシ(甲虫目ゾウムシ科)成虫の新代 替加害植物. — これまでアオクチナガヒゲボソゾウムシの成虫加害植物としてスギが知られて いたが、島の高地(山地)では同じヒノキ科のビャクシンを利用することが最近明らかになった.今 回、新たに島の高地においてマツ科に属するツガとモミから本種成虫をまとまった数確認したので、 新加害植物として報告した.なお、これら針葉樹に隣接してスギが見られたが、ツガやモミに比べ明 らかに確認された成虫個体数が少なかった.本種成虫の高地での採集記録は5、6月から7月で、今 回成虫が確認された7月中旬は本種成虫の出現期後期と考えられ、ツガ、モミはスギの代替植物とし て利用している可能性がある.また、本種成虫がヒノキ科のみならずマツ科も利用していることが初 めて明らかとなった.

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