

## The Host Plant of *Apion sulcirostre* (Coleoptera, Apionidae) on Mt. Fuji

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**Abstract** One of the host plants of the apionid weevil *Apion sulcirostre* SHARP is determined on *Prunus incisa* of the Rosaceae on Mt. Fuji in Central Japan. Since the weevil species also occurs widely outside the distributional range of *P. incisa*, such a close relative of the cherry tree as *P. nipponica* may also serve as a host plant of the weevil.

It seems worth noting that *A. sulcirostre* is the only species of the subgenus *Protapion* that uses the plants of the family Rosaceae as the hosts, in sharp contrast to all the other known species of the same subgenus which depend on the plants of the Leguminosae. Further researches seem required for the relationship between *A. sulcirostre* and the remaining species. It is also necessary to investigate the reason why the weevil assembles on coniferous trees late in the autumn, though the weevil does not feed on conifers.

### Introduction

*Apion sulcirostre* SHARP is a minute weevil, 1.8–2.5 mm in body length, belonging to the subgenus *Protapion*. It is widely distributed over Hokkaido and Honshu, Japan, and mainly inhabits the *Fagus crenata* zone 1,000–1,500 m above sea-level (MATSUI, pers. comm.). However, its ecology is little known, and even its host plants have not been clarified until now (OSHIO, 2000). It is often observed to form a large assemblage on such coniferous trees as *Abies firma* in the late autumn, though they never feed on conifers. To elucidate this enigmatic situation, we pursued our studies in the springtime and obtained the result to be given in this paper. The specimens used were identified with *Apion sulcirostre* by Dr. Katsura MORIMOTO of Kyushu University.

### Location and Period of Observation

The field of observation is a forest dominated by *Quercus mongolica* var. *grosseserrata* at the southeastern side of Mt. Fuji approximately at about 1,600 m above sea-level in Gotenba-shi of Shizuoka Prefecture. On a gentle southward slope formed by volcanic sand erupted from Mt. Fuji, there are sporadic growths of such medium-sized trees as *Quercus mongolica* var. *grosseserrata*, *Abies firma* and *Sambucus sieboldiana* with occasional groves of *Sasa veitchii* var. *veitchii*. Main undergrowths are formed by



Fig. 1. Mating individuals of *Apion sulcirostre* SHARP on a leaf of *Prunus incisa*.

*Leucosceptrum japonicum* with *Paeonia japonica*, etc. here and there.

Field observations were performed six times in 1999, on April 17, April 28, May 8, May 21, June 5 and November 5, and twice in 2000, on May 26 and July 13. Indoor observations were conducted from April 17 through July 20, 1999.

### Method

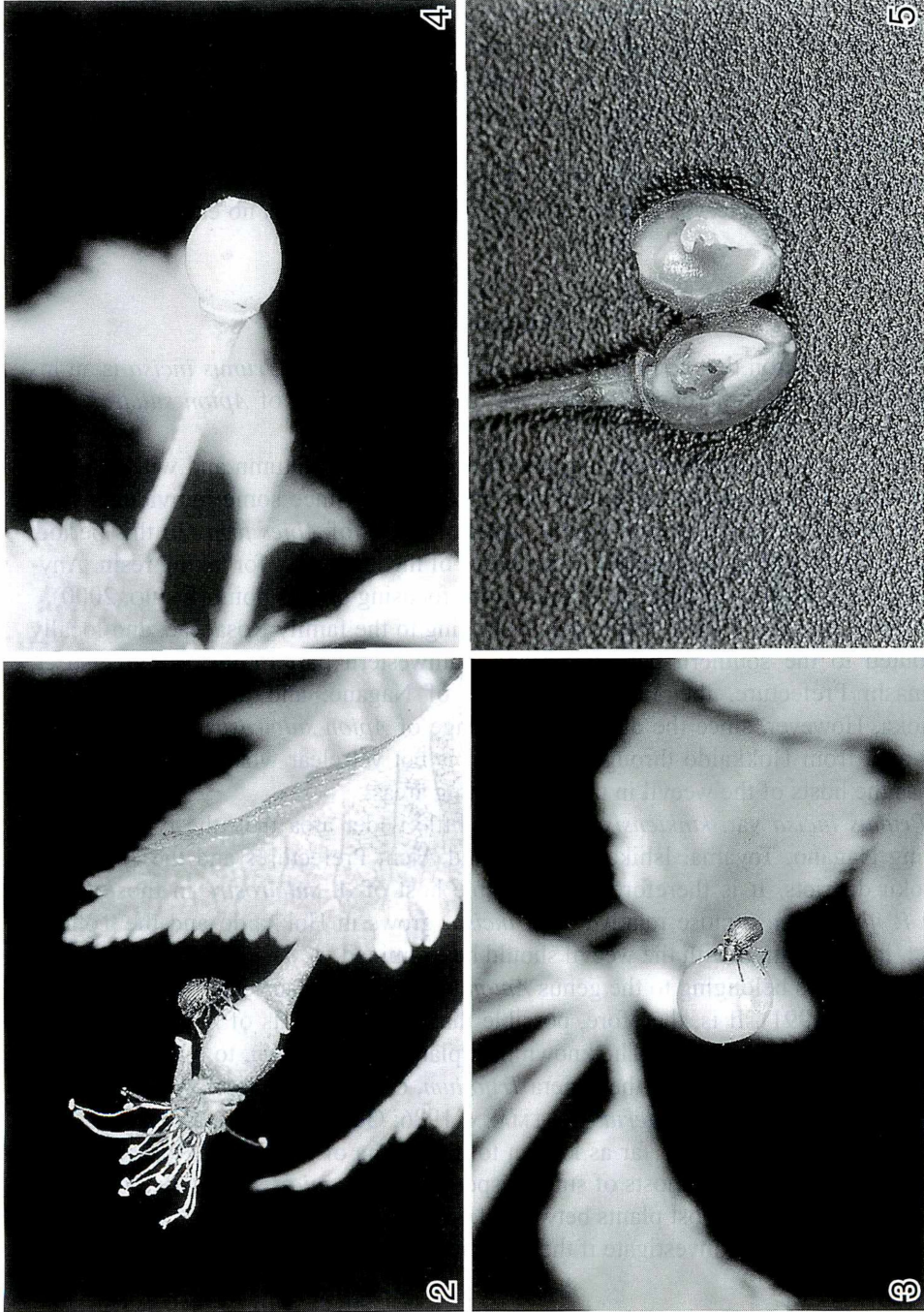
Field observations were made in the daytime when the weather was fine and the wind was low.

For indoor observations, 20 specimens of the weevil collected in the field were placed in a sealed container (made of polypropylene, 15×25×40 cm) together with the plant they fed on, maintained them and observed. On April 17, fruited branches of *Prunus incisa* were taken from the field, placed in the container, and kept in a dark room.

### Results

In the field, many individuals of *Apion sulcirostre* were observed from April 17 to May 21, 1999, always on *Prunus incisa*. Further detailed observation revealed some individuals in mating (Fig. 1) and those inserting their proboscides into immature fruits (Figs. 2 and 3). Also many fruits had sucking scars (Fig. 4). However, we were unable to obtain adult weevils from *P. incisa* after June 4 of that year. Many individuals





Figs. 2-5.—2-3. *Apion sulcirostre* SHARP inserting its proboscis into an immature fruit of *Prunus incisa*. —4. Sucking scar on an immature fruit of *Prunus incisa* made by *Apion sulcirostre*. —5. A larva of *Apion sulcirostre* in a fruit of *Prunus incisa*.

of the weevil were also observed on May 26 of the next year on *P. incisa*, but not on July 13.

The adults collected in April 1999 performed mating and sucked juice from the fruits. Besides, larvae were found in the fruits of *P. incisa* collected from the field in May (Fig. 5). On July 1, newly emerged adults were observed in the container with fruited branches alone.

In the field observation made on November 5, many individuals of *A. sulcirostre* were observed on the leaves and branches of *Abies firma*, though no eating scars were detected.

### Discussion

The observation that adult weevils emerged from fruits of *Prunus incisa* is an infallible evidence that the cherry tree is one of the host plants of *Apion sulcirostre* at this location.

However, it is still uncertain why the weevil spend the autumn and winter on the neighboring wild conifers after emergence on *P. incisa*. Since some individuals were seen inserting their proboscides into the bases of leaves of *Abies firma* in this period, we suspect if they temporarily feed on the bases of the leaf stalks for taking resin. Anyway, we will continue our detailed examinations focusing on this point (OSHIO, 2000).

*Prunus incisa* is a short cherry tree belonging to the family Rosaceae, and locally distributed to the southern part of Chiba, southwestern part of the Kantô district, Yamanashi Prefecture, the Yatsugatake areas of Nagano, and the eastern part of Shizuoka. However, since the distributional range of *Apion sulcirostre* covers a much wider area from Hokkaido through Honshu, it is not yet clear what species of plants serve as the hosts of the weevil in those remaining areas.

*Prunus incisa* var. *kinkiensis* occupies a little wider area than the typical form, covering Nagano, Toyama, Ishikawa, Fukui and Aichi Prefectures and the Kinki and Chûgoku districts. It is therefore a presumable host of *A. sulcirostre* in those areas. Since *P. nipponica*, a close relative of *P. incisa*, grows in Hokkaido and the Tôhoku district, its association with the weevil should be examined.

The weevils belonging to the genus *Apion* usually select particular plants for their hosts (FEERE, 1991). It is, therefore, possible that the host plants of *A. sulcirostre* are closely related to one another. The known host plants of *Protapion*, to which subgenus belongs *A. sulcirostre*, include the genera *Trifolium*, *Ononis*, *Meicago*, *Onobrychis*, *As-tragalus*, *Calycotome* and *Wisteria* (HOFFMANN, 1986; GONGET, 1997), all of which belong to the Leguminosae. So far as known to me, plants of the family Rosaceae have never been recorded as the hosts of studied species of *Protapion*. Seeing that there is a wide discrepancy in the host plants between *A. sulcirostre* and other *Protapion* species, we are now planning to investigate if their relationship is really close or not.



### Acknowledgement

I thank Dr. Yoshihisa SAWADA of the Museum of Nature and Human Activities, Hyogo for giving me guidance and providing me with literature, and Dr. Katsura MORIMOTO of Kyushu University for taking trouble to identify the weevil and for encouraging me in my effort to determine the host plant. Further, I thank Mr. Koichi MATSUI for generously informing me of his findings on *Apion sulcirostre* in the Kiso area, and my wife Haruko for her unfailing help in the maintenance and observation of the weevils both in the field and in the room.

### 要 約

大塩一郎：セアカホソクチゾウムシの富士山での宿主。—— 宿主植物が知られていないセアカホソクチゾウムシについて、富士山においてはフジザクラが宿主であることをこのたび確認した。しかし、フジザクラの分布域外にもセアカホソクチゾウムシは生息しているので、そのような場所ではフジザクラに近縁のミネザクラ、キンキフジザクラなどが宿主植物ではないかと推察される。また、本種が属する *Protapion* 亜属の宿主は一般にマメ科植物であることから、バラ科植物を宿主とする本種との類縁関係を検討し直す必要があるかもしれない。さらに、本種が秋季に針葉樹へ集まる理由も究明する必要があるだろう。

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