

ZOOLOGY.—*The occurrence of the terrestrial amphipods, Talitrus alluaudi and Talitrus sylvaticus, in the United States.*<sup>1</sup> CLARENCE R. SHOEMAKER, U. S. National Museum. (Communicated by MARY J. RATHBUN.)

The first record of the occurrence of a strictly terrestrial amphipod in the United States is that of Dr. J. Paul Visscher and Chester S. Heimlich (Science, 72: 560, 1930). In 1930 they reported *Talitrus alluaudi* Chevreux abundant in a greenhouse at Columbus, Ohio, where they say it had survived for more than two years. In 1931 specimens of this species from a greenhouse at Flemington, New Jersey were sent to the Nation Museum for identification. These are the only known occurrences of *Talitrus alluaudi* in America.

*T. alluaudi* was described from the Seychelles Islands in 1896 where it occurs in rotton trunks of coconut trees and in the humus of forests. In temperate countries, however, it has been reported only from greenhouses.

In 1918 and 1919 Mrs. Kate Stevens, of the Natural History Museum, Balboa Park, San Diego, California, sent to the National Museum specimens of an amphipod which had been found upon a sidewalk in Balboa Park. Mr. Frank F. Gander in 1927 sent the Museum excellent specimens of the same species which he had found in Balboa Park. In December, 1934, and January, 1935, Prof. S. F. Light of the University of California sent the Museum further specimens of this species from a garden in Pasadena, California. Upon careful study, this amphipod proved to be *Talitrus sylvaticus* Haswell, and Mrs. Stevens' specimens of 1918 appear to be the first of this species to be taken in America.

The specimens sent to the Museum by Professor Light were secured in October, 1934, at Pasadena by Mrs. Merwin, who, in a letter to him, says, "The pests came during the recent rains in such quantities that they had to be cleared out of the gutters and literally shoveled from in front of the door. They even came into the house under the front door, but were dead when we found them. They seem to come up alive, and of a dark color, from between the bricks around the front door, though also found in garden gutters." In a later letter to Professor Light, dated November 17, 1934, she says, "The amphipods which you requested reappeared. In yesterday's rain they were found, though not in the former quantity, in our garden and a friend also reports them in Arcadia, which is about five miles east of Pasadena."

<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution. Received October 3, 1935.

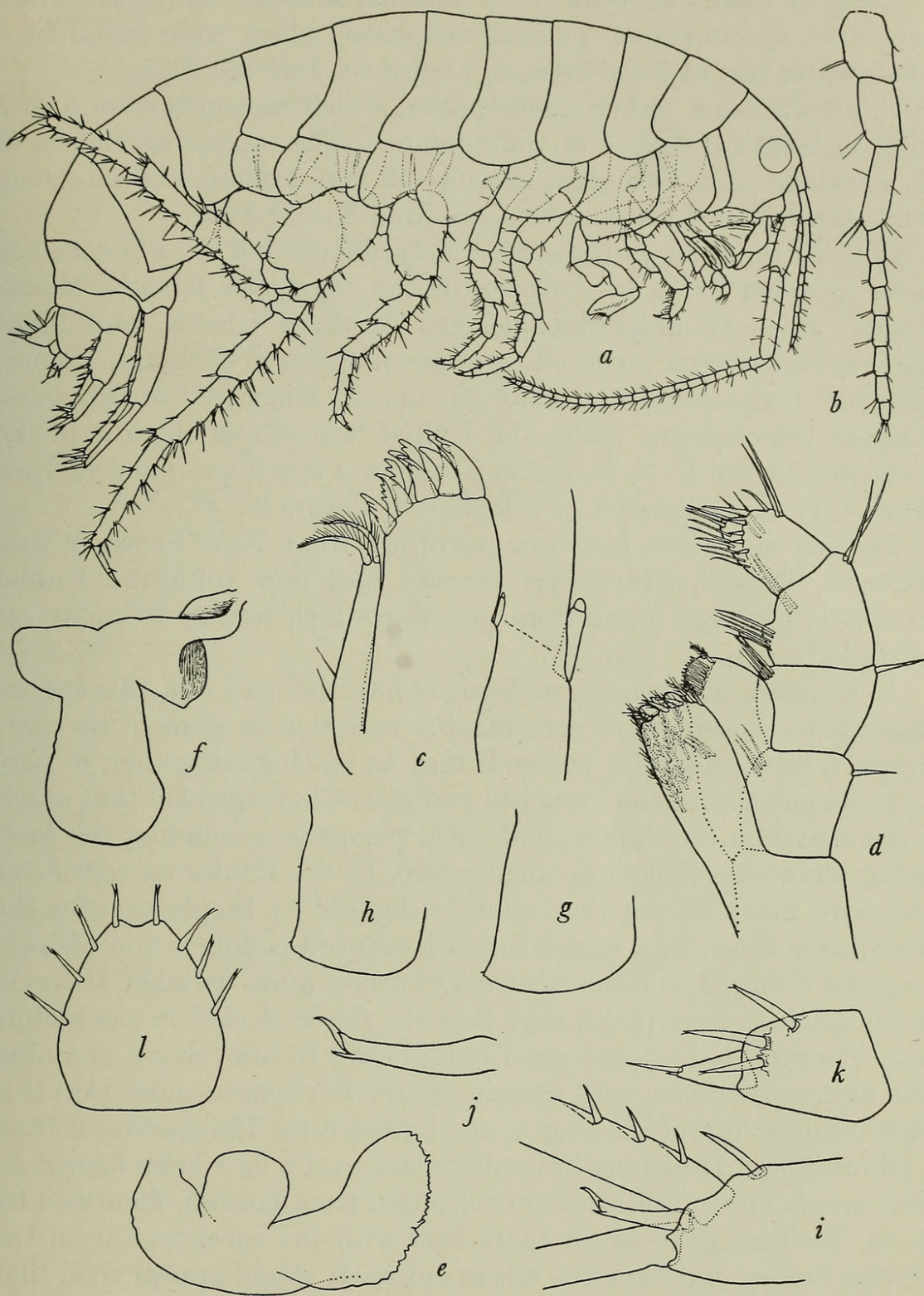


Fig. 1.—*Talitrus sylvaticus* Haswell, female. *a*, entire animal. *b*, antenna 1, top view, enlarged. *c*, maxilla 1. *d*, maxilliped. *e*, branchial vesicle of gnathopod 2. *f*, branchial vesicle of pereopod 4. *g*, pleon segment 2. *h*, pleon segment 3. *i*, distal end of peduncle of uropod 1. *j*, spine at distal end of peduncle of uropod 1, enlarged. *k*, uropod 3. *l*, telson.

Recently there were sent to the National Museum for identification seventeen specimens of *Talitrus sylvaticus*, which were found in a dog's water pan at New Orleans, Louisiana, July 25, 1935.

*T. alluaudi* is a rather small species, which measures from 5 to 7 mm. in length exclusive of the antennae. The largest specimens of *T. sylvaticus* from California measure 13 mm. exclusive of antennae, while those from Louisiana measure from 5 to 11 mm.

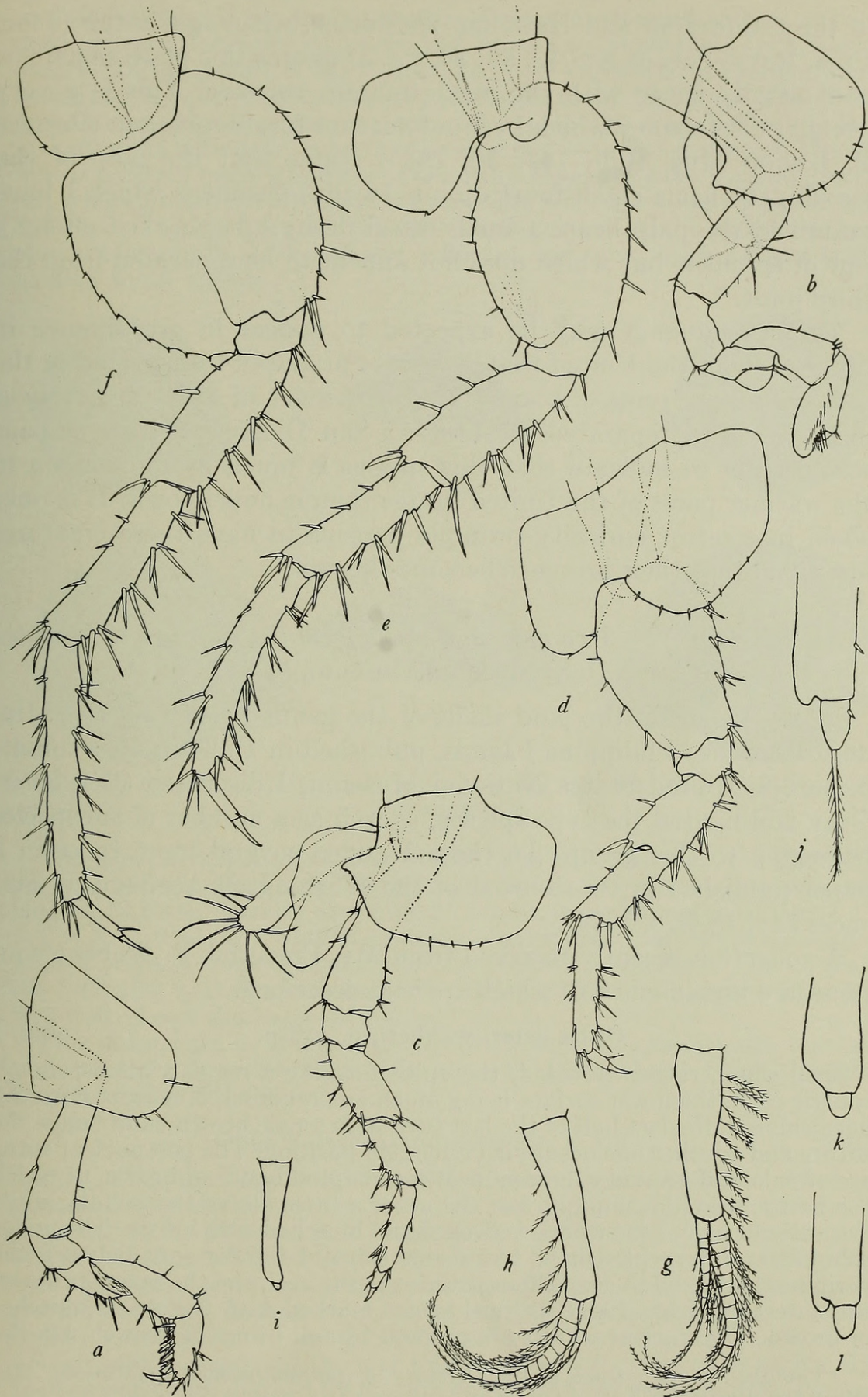
Both of these amphipods are widely distributed. *T. alluaudi* has been recorded living in the open at the Seychelles Islands, Madagascar, Java, Gambier Archipelago, Taumotu Islands, and Mangareva. It has been recorded from greenhouses in Belgium, France, Monaco, Switzerland, Germany, Denmark, Hungary, British Isles, Sweden (Stephensen, 1935), the United States, and there is in the collection of the U. S. National Museum a specimen found in New York City in a shipment of celery from Bermuda.

*Talitrus sylvaticus* has been recorded from New South Wales, Victoria, Hawaii, Marquesas Islands, and now from the United States. It has been found from just above high tide up to 2,520 feet altitude.

As Calman, Stephensen, and others have pointed out, this species appears to be subject to considerable variation in some of its characters. The third pair of pleopods may be lacking altogether, or may be quite small with the branches vestigial. Chevreux said that specimens sent him by Chilton had third pleopods resembling the first, being biramous, though of smaller size. In the California specimens the third pleopods are very much as figured by Stephensen for the Marquesas specimens, consisting of a reduced peduncle and a single vestigial ramus. The telson also apparently is quite variable. Haswell, in his original description, says that the telson is cleft in the middle line. Thomson said it appeared quite entire to him. Sayce describes and figures the telson with margin entire. Stephensen states that it is cleft for one-third of the length, and figures it so. The specimens from California and Louisiana have the telson entire as I have figured it. Two specimens in the Museum collection from Hawaii, identified by A. O. Walker, agree in all characters with the specimens from the United States, and have the telson entire. It would appear then that the telson in *T. sylvaticus* may be either entire or partly cleft. The outer plate of the maxillipeds is rather broad, and rounding distally

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Fig. 2.—*Talitrus sylvaticus* Haswell, female. *a*, gnathopod 1. *b*, gnathopod 2. *c*, peraeopod 2. *d*, peraeopod 3. *e*, peraeopod 4. *f*, peraeopod 5. *g*, pleopod 1. *h*, pleopod 2. *i*, pleopod 3. *j*, *k*, *l*, distal end of pleopod 3, enlarged.



For explanation of Fig. 2, see bottom of opposite page.

in the Californian and Hawaiian specimens, whereas Chilton (Jour. Proc. Royal Soc. of N.S.W. 50: 84, fig. 3) figures this plate as narrow and distally acute with the inside margin concave. This is a very peculiar discrepancy which I cannot account for. Stephensen (Bernice P. Bishop Mus. Bull. 142: 20, 1935) states that the palp of the maxillipeds has a small fourth joint. In the specimens which I have examined the palp bears a small distal fleshy lobe marked off by a row of spinules, but which does not appear to be separated from the third joint.

*Talitrus alluaudi* may be expected to appear in greenhouses in other parts of the United States, as it is probably transported in the soil around the roots of plants. The occurrence of *Talitrus sylvaticus* in such widely separated localities as San Diego and New Orleans would seem to indicate that this species is much more common in the warmer parts of the United States than is now known. It is only when interest or curiosity prompts persons to have these creatures identified that their presence becomes known.

MALACOLOGY.—*Two new land shells from the Philippine Islands.*<sup>1</sup>

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In my paper on the land shells of the genus *Obba* from the Mindoro Province, Philippine Islands, published in Bulletin 100, volume 6, part 8, United States National Museum, I discussed *Obba listeri* Gray and figured the type species, as well as a number of subspecies belonging to this group. To these I added several more races in a paper published in the Journal of the Washington Academy of Sciences 24: 318–323, 1934.

A collection recently received from Mr. Frederick S. Webber contains two unnamed races which are here described.

*Obba listeri webberi*, n. subsp.

Fig. 1

Shell small, rather elevated, the spire forming a regular, almost hemispheric cone, the lower surface being much less rounded. Nuclear whorls 2.1 horn colored, the last half of the last turn with a pale brown band below the suture and another one occupying a median position. The postnuclear turns are of pale buff ground color and bear interrupted bands of brown, of which the first is near the summit, and the other a little above the middle, while the anterior half of the whorls is flecked and blotched with brown. The under side has an interrupted band about one-third of the distance between the peripheral keel and the umbilicus anterior to the keel, and the region between this interrupted band and the keel is also marked with flecks and blotches of brown. The nuclear whorls are marked by faint lines of growth. On the

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