

**FIRST REPORT OF *PERSICARIA POSUMBU* (POLYGONACEAE)  
FOR NORTH AMERICA**

**DANIEL ATHA**

Center for Conservation Strategy  
New York Botanical Garden  
Bronx, New York 10458  
datha@nybg.org

**SARA RALL**

8 Washington Valley Road  
Warren, New Jersey 07059  
sararall@verizon.net

**ABSTRACT**

*Persicaria posumbu*, a smartweed from eastern Asia, is naturalized in populations on the Delaware River floodplain in New York and New Jersey — the first report of its spontaneous occurrence in North America. Documentation is provided by herbarium specimens preserved at the New York Botanical Garden and photographs uploaded to iNaturalist.

Plants of *Persicaria posumbu* (Buch.-Ham. ex D. Don) H. Gross have been found on floodplains of the Delaware River in Sullivan Co., New York, and Warren Co., New Jersey. This is the first report of this species growing spontaneously in North America (Hinds & Freeman 2005; USDA, NRCS 2020).

By the most improbable coincidence, on the same day and unbeknownst to the other, the authors observed populations of the *Persicaria* 85 miles apart: Atha in New York and Rall in New Jersey. Noting each other's observations uploaded to iNaturalist, a conversation ensued and two days later the first author returned to the New York population to make additional observations and collect herbarium specimens.

The New York plants did not key out in the recent FNA treatment (Hinds & Freeman 2005), nor were identifiable in the Flora of Pennsylvania (Rhoads & Block 2007), Flora Novae Angliae (Haines 2011), Flora of Virginia (Weakley et al. 2012), Flora of Vermont (Gilman 2015), Flora of Cortland and Onondaga Counties, New York (Hough 2019), and others. On suspicion that the plants might be another undocumented taxon for North America (Atha et al 2010; Atha & Carr 2010), keying the plants in the Flora of China (Li et al 2003) and the Flora of Taiwan (Huang et al. 1996) led to *Persicaria posumbu* (compare Figs. 1 and 2 with Figs. 3 and 4).

The New York population consists of hundreds or perhaps thousands of plants (Fig. 2) occupying an area of about 100 square meters in the alluvial floodplain of the Delaware River. The overstory consists of *Fraxinus americana*, *Tilia americana* and *Acer rubrum* with *Quercus rubra* and *Tsuga canadensis* in slightly upland areas. The herbaceous layer is dominated by *Persicaria posumbu* with scattered occurrences of *Persicaria virginiana*, *Ageratina altissima*, *Parthenocissus quinquefolia* and a dense covering of *Glechoma hederacea*. Somewhat smaller populations of *Persicaria longiseta* and *Persicaria nepalensis* occur nearby, the former growing with the *P. posumbu* (iNaturalist observations 58847228, 65565292, 65565293, 65565294, 65598441).

**Vouchers. New York. Sullivan Co.:** Village of Long Eddy, between the Delaware River and NY Hwy 97 and between Church Street and Basket Brook Road. 41.847817, -75.131298 (WGS84, ±5m), 9 Sep 2020, Atha 16168 (NY), 16169 (NY), 16170 (NY), 16171 (NY), 16172 (NY), 16173 (BH, NY).

Two populations of *Persicaria posumbu* were found in New Jersey. They consist of a few dozen to several dozen plants in two separate sites about one kilometer apart, one of about 20 square meters and one of about 3 square meters, both in the alluvial floodplain of the Delaware River, separated from the river by a freight railway. The larger population is at the base of a north-facing cliff with an overstory of *Robinia pseudoacacia*, *Acer saccharum*, and *Acer saccharinum*, with an understory of *Hamamelis virginiana* and *Lindera benzoin*. Undergrowth is dominated by *Persicaria posumbu*, *Glechoma hederacea*, and *Microstegium vimineum*, with scattered *Anthriscus sylvestris*, *Stellaria aquatica*, and *Pilea pumila*. (iNaturalist observations 59073673, 59073639, 59073638).

The smaller New Jersey population is at the base of a west-facing cliff with an overstory of *Juglans nigra*, *Carya cordifolia*, and *Quercus montana* with scattered *Sassafras albidum* and *Hamamelis virginiana*. Undergrowth is dominated by *Lonicera japonica*, *Microstegium vimineum*, and *Persicaria posumbu*, with scattered *Verbesina alternifolia*, and *Anthriscus sylvestris*. *Persicaria longiseta* and *Persicaria virginiana* also are present, within several meters (Fig. 1). (iNaturalist observation 59039385).

### Morphology

*Persicaria posumbu* is most easily confused with *Persicaria longiseta*. A collection of the latter (Wheeler 5591(x2), NY) has been misidentified as *P. posumbu*. The two species can be distinguished by the following key.

1. Leaves rhombic, bases cuneate, apices acute, adaxial and abaxial surfaces glabrous, purple blotch absent or faint, marginal bristles 0.1–0.3 mm long; inflorescences dense, fascicles congested (interrupted basally); pedicels included; proximal bracteole bristles surpassing the adjacent flowers; tepals dark pink, closed at anthesis; achenes < 2 mm long ..... ***Persicaria longiseta***

1. Leaves elliptic, bases rounded and abruptly cuneate to the petiole, apices caudate, adaxial and abaxial surfaces strigose, purple lunate blotch conspicuous and present at maturity, marginal bristles 0.5 mm long; inflorescences lax, fascicles remote; pedicels exerted; proximal bracteole bristles scarcely reaching the base of the tapals; tepals pale pink to white, open at anthesis; achenes > 2 mm long .....

### ***Persicaria posumbu***

*Persicaria posumbu* can be distinguished from all other North American *Persicaria* by the following suite of traits: Low annual; eglandular; stems branched near the base, glabrous; ocreae strigose with terminal bristles 3–7 mm long; leaf blades elliptic, bases rounded and abruptly cuneate, the apices distinctly caudate, margins ciliate with bristles ca. 0.5 mm long, abaxial and adaxial surfaces strigose, bright green, adaxial surface with a prominent lunate purple blotch at maturity; inflorescences mostly terminal, lax, up to 15 cm long (including the peduncle), fascicles usually 3-flowered; bracteoles (ocreae) with terminal bristles ca 1 mm long, about as long as the exerted pedicels; tepals light pink to white, many opening to expose the barely exerted, white stamens; achenes all trigonous, 2.3–2.5 mm long and 1.5 mm wide, dark brown, lustrous.

It is not known when or how *Persicaria posumbu* arrived in North America. But it is interesting to note that *Persicaria nepalensis* (Meisn.) H. Gross was first found in the Catskill Mountains of New York (not far from Long Eddy) and in neighboring Connecticut before expanding more widely. The species was present at the New York site of *P. posumbu*. The authors have not searched the intervening nearly one hundred miles of Delaware River floodplain for more plants, but it seems unlikely that these three populations are the only occurrences of the species in the region.



Figure 1. *Persicaria posumbu*. Warren Co., New Jersey, 7 Sep 2020. Photo 94301836, (c) Sara Rall, some rights reserved (CC BY-NC) <<https://www.inaturalist.org/observations/59039385>>.



Figure 2. *Persicaria posumbu*. Sullivan Co., New York, 7 Sep 2020. Photo 105610685, Daniel Atha, no rights reserved. <<https://www.inaturalist.org/observations/65598441>>



Figure 3. *Persicaria posumbu*. South Korea, Jeollabuk-do, KR. 1 Sep 2020. Photo 103585298, (c) Yanghoon Cho, all rights reserved. <<https://www.inaturalist.org/observations/64430382>>



Figure 4. *Persicaria posumbu*. Taiwan, New Taipei, 30 Oct 2019. Photo 55295066, (c) (Bunny-TailGra22), some rights reserved (CC BY-NC-SA). <<https://www.inaturalist.org/observations/35080170>>

#### ACKNOWLEDGEMENTS

The authors are grateful to Yanghoon Cho for permitting publication of the photo from South Korea. We are grateful to David Werier for reviewing the manuscript and for his helpful suggestions.

#### LITERATURE CITED

- Atha, D.E. and W. Carr. 2010. First report of *Persicaria hispida* (Polygonaceae) from North America north of Mexico. *J. Bot. Res. Inst. Texas* 4: 561–564.
- Atha, D.E., M.H. Nee and R.F.C. Naczi. 2010. *Persicaria extremiorientalis* (Polygonaceae) is established in the flora of the eastern United States of America. *J. Torr. Bot. Soc.* 137: 333–338.
- Gilman, A.V. 2015. New Flora of Vermont. *Mem. New York Bot. Gard.* 110: i–xiv, 1–614.
- Haines, A. 2011. *Flora Novae Angliae*. New England Wildflower Society and Yale Univ. Press.
- Hinds, H.R. and C.C. Freeman. 2005. *Persicaria*. Pp. 574–594, in *Flora of North America* Editorial Committee (eds.). *Flora of North America North of Mexico*, Vol. 5. Oxford Univ. Press, New York.
- Hough, M. 2019. *Flora of Cortland and Onondaga Counties, New York*.
- Huang, T.C. et al. 1996. *Flora of Taiwan*, Vol. 2 (ed. 2). Editorial Committee of the Flora of Taiwan, Dept. of Botany, National Taiwan University, Taipei.
- Li, A.J., B.J. Bao, A.E. Grabovskaya-Borodina, S.P. Hong, J. McNeill, S.L. Mosyakin, M. Ohba, and C.W. Park. 2003. Polygonaceae. Pp. 277–350, in Z.Y. Wu and P.H. Raven (eds.). *Flora of China*, Vol. 5. Missouri Botanical Garden Press, St. Louis.

- Rhoads, A.F. and T.A. Block. 2007. The Plants of Pennsylvania and Illustrated Manual, 2nd edition. Univ. of Pennsylvania Press, Philadelphia.
- USDA, NRCS. 2020. The PLANTS Database. National Plant Data Team, Greensboro, North Carolina. <<http://plants.usda.gov>> Accessed 27 November 2020.
- Weakley, A.S., J.C. Ludwig, and J.E. Townsend. 2012. Flora of Virginia. Botanical Research Institute of Texas Press, Fort Worth.