

PAEDERIA FOETIDA (RUBIACEAE), NEW TO THE FLORA OF NORTH CAROLINA

PETE DIAMOND

*Department of Horticulture
North Carolina Zoological Park
Asheboro, NC 27203, U.S.A.*

During the summer of 1998, *Paederia foetida* L. (Rubiaceae) (Fig. 1) was discovered growing at the North Carolina Zoological Park, five miles south of Asheboro, North Carolina, in Randolph County. The plant apparently is naturalized in its location from an unidentifiable source. The native vegetation around the collection location, adjacent to a zoological exhibit building, is composed of hardwood, deciduous forest species. The landscape is supplemented with additional plantings of native species to highlight the state's piedmont and mountain geographic regions.

Voucher specimens: **NORTH CAROLINA.** Randolph Co.: North Carolina Zoological Park, Asheboro, 35° 37' 52.37934" N, 79° 45' 36.14607" W, 13 Aug 1998, *Diamond* 428 (BRIT, NCU, NC Zoological Park); North Carolina Zoological Park, Asheboro, 35° 37' 52.37934" N, 79° 45' 36.14607" W, 19 Oct 1998, *Diamond* 479 (NCU, NC Zoological Park).

While often encountered in horticultural reference materials and select floras as *Paederia scandens* (Lour.) Merr. (Hillier Nurseries 1991; Krüssman 1977; Walker 1976), *P. foetida* L. is currently recognized as the correct scientific name (Kartesz 1999). Synonymous names include *P. chinensis* Hance and *P. tomentosa* Maxim. (Kartesz 1999).

Paederia foetida is a twining, deciduous vine capable of nodal rooting and notable for the rank odor it releases on warm, humid days and when parts of the plant are bruised. In Japan, the plant is referred to as "Flatulent Vine" (Walker 1976), while in the U.S. it has earned the name "Skunk-vine" (Weakley 1998). The genus comprises about 20 species of climbing shrubs native to temperate and tropical Asia and South America. Leaves of *P. foetida* are ovate to broadly ovate, truncate, cordate or subcordate, opposite, the veins on both surfaces with appressed pubescence, the upper surface also bearing short hispid or papillose-hispid hairs. Panicles are axillary; calyx lobes < 1 mm long at flowering; corolla white, tubular, ca. 1 cm long, with deep red throat. Fruit orange, globose, a 2-locular berry.

Documentation of the occurrence of *P. foetida* in North America is limited. Radford et al. (1964) noted it was "collected spreading from its site of cultivation in Darlington, Co., SC," after the manuscript for the *Manual of*



Herbarium of the
North Carolina Zoological Park

Paederia foetida L.

RUBIACEAE

Malodorous perennial vine exceeding 4 m. Corolla tubular, ~1 cm long, white, granular, throat dark red, styles 2. Flowers 5-merous, in axillary cymes. Upper leaf surface with strigillose, papillate hairs, and short hairs adpressed along veins. Stems twining or scrambling over ground and rooting at nodes, becoming woody.

Plant adjacent to elevated walkway at south doorway of north Streamside building. Asian origin vine, means of arrival at NC Zoological Park, Asheboro, NC, unknown

coll. Pete Diamond, no. 428

13 August 1998

Flora of Randolph County, NC

FIG 1. *Paederia foetida*. North Carolina Zoological Park, Asheboro, *Diamond 479*.

the *Vascular Flora of the Carolinas* had gone to press. There is little documented change in the distribution of *P. foetida* in the Carolinas during the past 30 years. Conferring with Radford, Weakley (1998) reports *P. foetida* is limited to disturbed areas of the South Carolina coastal plain and rarely spreads from plantings. Nelson (personal communication, 1998) notes that *P. foetida* is fairly widespread and naturalized in warmer, Gulf coastal states of the U.S., notably Florida. There also are documented reports of *P. foetida* in Louisiana (Thomas & Allen 1997) and Texas (Brown 1998). The species was first recorded as naturalized from O'ahu, Hawaii, in 1854 (Wagner et al. 1990).

Among three varieties of *P. foetida* recognized by Walker (1976, as *P. scandens*), the North Carolina plants are apparently closest to *P. scandens* var. *mairei* (Lév.) Hara, based on the leaf shape and vestiture. In var. *mairei*, Walker noted that "lower leaf surfaces are glabrous except for tufts of hairs in vein axils," while in var. *villosa* lower leaf surfaces are villous. Leaves of the North Carolina plants are sparsely hairy but not distinctly villous.

A record of *Paederia foetida* in North Carolina is noteworthy not only to document the spread of this exotic species but also to confirm its ability to tolerate severe winter temperatures. In North Carolina the plant is probably near the limit of its northern hardiness range. This species is reportedly capable of surviving minimum winter temperatures of 0 to 10 degrees Fahrenheit (Huxley 1992), although Krüssman (1977) suggests a cold hardiness of -10 to 0 degrees Fahrenheit.

Paederia foetida has proved hardy in North Carolina, surviving as an herbaceous perennial through the winter of 1998/1999 and, in all likelihood, several previous winters as well. Efforts were made in October 1998 to limit the spread of this species by pulling out or cutting back stems, largely to keep the plant from establishing itself and becoming invasive. Pruned stems, however, were resprouting and leafing out by mid-April 1999.

The single plant discovered at the North Carolina Zoological Park was extensive, climbing through nearby shrubs and low branches of trees and scrambling over the ground up to four meters in length. Because of the propensity for nodal rooting, the main stem is difficult to determine. The most likely point of origin, however, appears near the trunk of a beech tree (*Fagus grandifolia*). This tree was planted during early landscaping around the building in December 1993. Deliveries of 14 balled and burlapped *F. grandifolia* were received at the Park in mid-November from two separate nurseries in the vicinity of McMinnville, Tennessee. While there are currently no reports of *P. foetida* occurring in Tennessee, one possibility is that *Paederia* was already growing in the root ball of one of these trees. The plant may also have sprouted from a seed deposited by migratory birds or, possibly, from purchased com-

mercial birdseed of unknown origin that was scattered in the vicinity. Because the plant was growing at the Park for an undetermined amount of time, any theories relating to its original source are inconclusive.

Several fruits were observed in October 1998, but reproduction appears low. Herbarium specimens collected from the NC Zoological Park indicate that only two berries were produced from more than two dozen panicles, suggesting the occurrence of a low frequency of successful self-pollination. By contrast, fruiting specimens (NCU) collected in Japan in 1985, show heavy berry production.

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