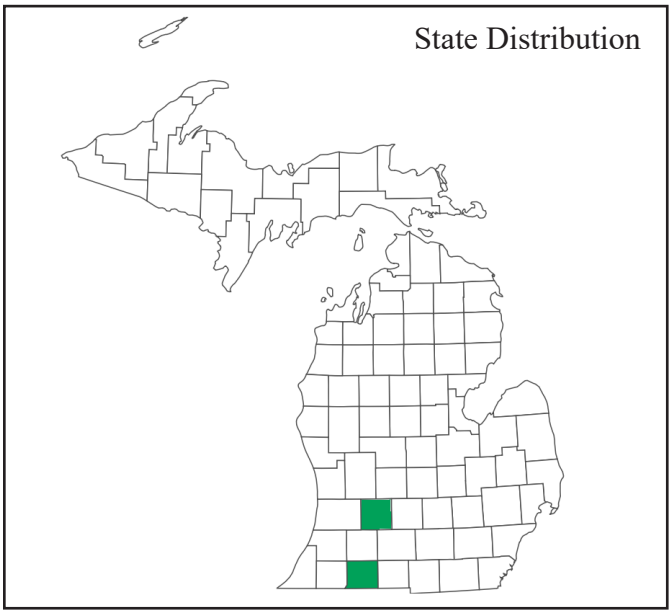
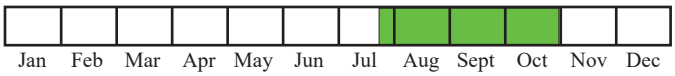
Persicaria robustior (Small) E. P. Bicknell — Stout smartweed

Photograph by Daniel Atha, iNaturalist



Best Survey Period



Legal status: State Threatened

Global and state rank: G5 (Secure) / SNR (Not Ranked)

Other common name(s): stout dotted smartweed, coarse smartweed

Family: Polygonaceae (buckwheat family)

Synonyms: *Persicaria punctata* var. *robustior* (Small) Small, *Polygonum punctatum* Ell. var. *robustius* Small, *Polygonum punctatum* var. *majus* (Meisner) Fassett, *Polygonum robustius* (Small) Fernald

Taxonomy: The genus *Persicaria* is member of Polygonaceae, or the buckwheat family, and the genus has between 120 and 150 accepted species. There are fourteen species of *Persicaria* in Michigan, and Carey's smartweed (*P. careyi*) is also State Threatened. The taxonomy of *Persicaria* has long been considered challenging, and resolving phylogenetic relationships has proved to be a difficult endeavor. The lack of certainty is likely due to multiple hybridization events between species followed by instances of polyploidy which result in allopolyploid speciation (Kim and Donoghue 2008a, Kim et. al. 2008). This type of speciation is nearly instantaneous as new individuals are immediately prohibited from reproducing with their parent lineages. (Kim et. al. 2008). Stout smartweed was historically considered a variety of dotted smartweed (*Persicaria punctata* var. *robustior*), but more recent genetic analyses have revealed the relationship between the two species is more complex (Kim and Donoghue 2008b).

Total Range: Stout smartweed has a northeastern distribution ranging from Ontario, Quebec, and Nova Scotia south along the Atlantic coastline to North Carolina and east to Missouri, Indiana, and Michigan. Its distribution is not seamless, however, and it has not been yet documented West Virginia, Delaware, and Vermont. There also appear to be disjunct populations in Florida and Texas, although they may be adventive. The species is possibly more common throughout the United States but may be overlooked due to its presumed synonymy with and resemblance to dotted smartweed. Stout smartweed is listed as Possibly Extirpated (SH) in Missouri and Maine; Critically Imperiled (S1)

Michigan Natural Features Inventory
Phone: (517) 284-6200 Email: mnfi@msu.edu
Website: mnfi.anr.msu.edu

in Ontario, New Hampshire, and North Carolina; Imperiled (S2) in Quebec, Ohio, and New Jersey, Apparently Secure (S4) in Nova Scotia and Pennsylvania, Secure (S5) in New York, and No Status Rank (SNR/SU/SNA) in Michigan, Indiana, Kentucky, Texas, Florida, Connecticut, Rhode Island, and Massachusetts (NatureServe 2023).

State Distribution: Stout smartweed has only been found at two sites located in Barry and St. Joseph Counties. The population in Barry County was located near a fen while the other was located near the St. Joseph River (Kogge and Reznicek 2001, MNFI 2025).

Recognition: Stout smartweed, as its common name implies, is a stout, robust herb that can reach heights of up to 2 m (6.6 ft). Stems are often 1 cm (0.4 in) thick, glabrous, and either simple or branched. Leaves are large, simple, petioled, elliptic-lanceolate, and glabrous with antrorsely-strigose margins. Blades range from 4 – 20 cm (1.6 – 7.9 in) long and 2.5 – 4 cm (1 – 1.6 in) wide. Typical of the family Polygonaceae, and the genus *Persicaria*, stout smartweed has an ocrea at leaf nodes, which is a membranous sheath of tissue that encircles the node. Stout smartweed ocreas bear appressed, ciliate bristles that reach a length of 3 – 8 mm (0.1 – 0.3 in) in length. The inflorescence is an uninterrupted raceme, or paniculate spike, that is 2 – 8 cm (0.8 – 3.1 in) long. The inflorescence ocreolae, which are ocrea found subtending flowers, are often overlapping and either lack cilia or have cilia up to 0.7 mm (0.03 in) long. Flowers are green to white, numerous with 2 – 4 flowers per ocreolae node, radially symmetrical, and comprised of 5 fused tepals. Tepals are also conspicuously spotted with brown glands. Fruits are dark, shiny, trigonous achenes that are 2.7 – 3.6 mm (0.11 – 0.14 in) long and 2 – 3 mm (0.08 – 0.12 in) wide (Gray and Fernald 1950, Gleason and Cronquist 1991, Hinds et. al. 2020).

Stout smartweed is an unusually large species of *Persicaria*, and it is the only species found in Michigan that has a **combination of glabrous stems, appressed ocrea bristles, spotted flowers, a dark and smooth achene, and an uninterrupted inflorescence**. It is most similar to dotted smartweed but differs across multiple characteristics. Generally, stout smartweed is of a larger stature (30 – 200 cm [12 – 79 in]) than dotted smartweed (15 – 120 cm [6 – 47 in]). The inflorescence of stout smartweed is continuous with the lower ocreolae overlapping while the inflorescence of dotted smartweed is interrupted and the lower ocreolae do not overlap. Furthermore, the lower ocreolae of stout smartweed either lack cilia or have hairs less than 0.7 mm (0.03 in) long compared to lengthier hairs on the lower ocreolae of dotted smartweed that can reach 0.4 – 1.8 mm (0.02 – 0.07 in). Lastly, the largest leaves of stout smartweed are over 2.5 cm (1 in) wide while the largest leaves of dotted smartweed are generally 0.5 – 2.5 (3.5) cm (0.2 – 0.9 [1.4] in) wide. (Reznicek et. al. 2011)

Best survey time/phenology: A positive identification can be made if the inflorescence is present and intact. (Hinds et. al. 2020, COHM 2025). Stout smartweed may start flowering as early as late July but typically blooms in August. The flowering period can last for 1-2 months, and fruits will begin maturing in mid-September or early October. Fruits have been observed persisting into November.

Habitat: Throughout its range, stout smartweed grows in wet habitats with saturated soils, including standing water, creek floodplains, wooded and shrubby swamps, shallow impoundments, edges of marshes and lakes, and roadside ditches. It can also be found within tidal and alluvial marshes along the east coast of the United States. Populations outside of Michigan are associated with shoreline sedge (*Carex hyalinolepis*), buttonbush, (*Cephalanthus occidentalis*), whorled loosestrife (*Decodon verticillata*), soft-stemmed rush (*Juncus effusus*), red duckweed (*Lemna turionifera*), water-purslane (*Ludwigia palustris*), creeping water-primrose (*Ludwigia peploides*), greater duckweed (*Spirodela polyrh*iza), cat-tail (*Typha* sp.), pointed water meal (*Wolffia brasiliensis*), common water meal (*Wolffia columbiana*), dotted smartweed and Carey's smart-

weed. (COHM 2025)

In Michigan, stout smartweed has been found in a shrubby and marshy sedge meadow near a fen and in small colonies within the floodplain for a major river (Kogge and Reznicek 2001, MNFI 2025). Associates in Michigan include silver maple (*Acer saccharinum*), cut-leaved water parsnip (*Berula erecta*), common dodder (*Cuscuta gronovii*), cut grass (*Leersia oryzoides*), common duckweed (*Lemna minor*), arrow-arum (*Peltandra virginica*), water smartweed (*Persicaria amphibia*), bitter rock (*Rumex obtusifolius*), willow (*Salix eriocephala*), lizard's-tail (*Saururus cernuus*), marsh fern (*Thelypteris palustris*), pointed water meal, and common water meal.

Biology: Stout smartweed is a rhizomatous, herbaceous perennial that often spreads colonially from a thick, forking root system and forms dense colonies. Not much is known about the species' natural history, but some of its interactions between insects and animals may be similar to those of the closely related dotted smartweed. Dotted smartweed flowers attract bees, wasps, Syrphid flies, and beetles, and its foliage is consumed by lepidopteran larvae, such as Bronze Copper (*Lycaena hyllus*) and Purple Copper (*Lycaena helloides*). Other insect groups, including sawflies, weevils, plant bugs, and grasshoppers, as well as white-tailed deer, muskrats, and turtles, have been observed consuming vegetation to varying degrees. The achenes of dotted smartweed are eaten by waterfowl and wading birds, including ducks and rails, and seeds are likely dispersed by these species. (Hilty 2025)

Conservation/management: Little is known about the conservation and management of stout smartweed, but like many other wetland plants, it is dependent on intact hydrological regimes and minimal anthropogenic disturbances such as ORV use, dredging, draining, and altering river or stream channels. Runoff from agriculture, lawns, and sewage systems can also cause nutrient overloading in aquatic and emergent systems. These disturbances in the landscape can lead to habitat degradation

Photograph by Nate Martineau, iNaturalist

Figure 1. Ocrea with appressed bristles of stout smartweed.

and facilitate invasive species encroachment. Invasive species likely to impact stout smartweed include glossy buckthorn (*Frangula alnus*), purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), common reed (*Phragmites australis* subsp. *australis*), and cat-tail (*Typha* spp.). (Slaughter 2010, Tepley et. al. 2010)

It is important to protect the genetics of stout smartweed populations in Michigan because Michigan is at the northwestern extent of its range, and plants are likely to carry different genes from the core population (Lesica and Allendorf 1995). Peripheral populations are more likely to endure environmental stressors that core population plants do not, and adaptations to these stressors strengthen the resilience of the species, particularly in the face of climate change (Lesica and Allendorf 1995, Rehm et. al. 2015).

Photograph by agbelliveau, iNaturalist

Figure 2. Colony of stout smartweed blooming in Michigan.

Research needs: More surveys are needed to determine the full extent of stout smartweed in Michigan and assess the viability of the species within Michigan. Genetic studies are also needed to determine stout smartweed's relationship to other *Persicaria* species and to resolve taxonomy discrepancies. Research is needed for the ecology and biology of stout smartweed, specifically regarding the roles and types of pollinators, methods of seed dispersal, host and pest herbivory, and response to habitat degradation as these insights can inform management strategies.

Related abstracts: floodplain forest, emergent marsh, southern hardwood swamp, Carey's smartweed, cut-leaved water parsnip, Blanding's turtle, osprey

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