

WATERSHED INVASIVE PLANTS

The Boquet and Au Sable River Associations spent a year inventorying invasive plants in the two watersheds, particularly along riparian corridors and in wetlands. Four priority species were specifically targeted: purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*, known here as Adirondack bamboo), common reed (*Phragmites australis*), and garlic mustard (*Alliaria petiolata*). These are the top four nuisance, non-native, semi-aquatic plants in New York State.

Boquet Results: Inventory results vary dramatically between the two watersheds. The Boquet River watershed, half the size of the Au Sable, has 56 times the amount of invasive plants. Twenty-one miles of the Boquet River, from Elizabethtown to the mouth at Lake Champlain, have invasive plants growing on cobble bars, in bedrock crevices, on embankment slopes or on the top of banks at intervals no greater than 1/10th of a mile. (No river miles were noted in the Au Sable inventory, and 1/10th of a mile was set for mapping purposes.) Average intervals are more generally every 100-200 feet.

If all square yardage of invasive plants are totaled for the Boquet watershed, *without* counting invasive plants found immediately in or next to the 21 miles of the main stem, the accumulated total equals 26 acres. Purple loosestrife has both the greatest square yard coverage (113,344 or 23 acres) and the greatest single abundance found at one location (17,000 sq. yds.). Japanese knotweed is second with 9,732 square yards (2 acres), common reed is third with 3,359 square yards, and garlic mustard ranks last with 296 square yards.

At least 49 designated APA wetlands in the Boquet watershed contain at least one of the four main invasive plants. Only 12 APA wetlands searched are free of invasive species.

Wetlands are the primary location of invasive plant species in the Boquet watershed. Not including wetlands immediately adjacent to stream corridors, 40,847 sq. yds. of invasive plants are located in wetlands. The chart shows square yardage of the primary locations.

Farm	14,517 sq. yds.
Railroad ROW	19,255
Road ROW/Drainage ditch	26,314
Stream corridors	35,147
Wetlands	40,847

AuSable Results: Inventory results of the Au Sable River watershed are quite different. There are only 32 sites containing invasive plants; of those, only 5 are located in small, non-jurisdictional wetlands. The vast majority of sites are private yards and gardens. None of the four invasive plants are found along stream corridors. When totaled, the acreage of invasive plants measures less than 1/2 an acre (2,236 sq. yds.). About half of that number is from one fallow farm field in Peru with purple loosestrife.

Purple loosestrife is the most abundant invasive species in the watershed at 1,721 square yards. Japanese knotweed is second at 297 sq. yds., and Phragmites the least abundant at 218 sq. yds.

Why so much more in the Boquet watershed? We can only conjecture. If you were to look at topographic maps of the two watersheds, you would immediately see higher elevations in the AuSable watershed. But this appears to have little influence. The Adirondack Park Invasive Plant Program (a cooperation between DOT, APA, DEC, and the Adirondack Nature Conservancy) is finding all four invasive plants at higher elevations in some areas of the Adirondack Park.

A look at land use maps, however, reveals more open land, more farm land, and more hamlet settlements closer together in the Boquet watershed. Three of the four invasive species prefer sun (garlic mustard grows primarily in an understory environment), so the open land of the Boquet watershed looks more favorable. Open land also allows easier seed distribution by wind currents. Many invasive plants can be found along the "wind tunnels" of roadways and railroad tracks. More than likely, the loosestrife and Japanese knotweed, growing along Route 9N near the watershed divide, will soon travel westward toward Keene and Keene Valley.

Farm animals may help to transport seed and regenerative plant parts, and so can farm equipment and farm products. Purple loosestrife seeds and plant parts will hitchhike on plows and mowing machines, and in hay bales. Also, land disturbed for development, and fill material brought in to level areas for industrial parks, businesses, parking lots, culverts, play fields, and emergency fire exercise areas are all prime locations for invasive plants.

It is interesting to note that eroded streambanks are not prime locations for invasive plants primarily due to removal through erosion and by ice scouring. Floodplains, however, are a different story. Clumps of Japanese knotweed root masses break off with high water or with ice and easily establish themselves on a downstream floodplain. In an area of Whallonsburg, BRASS took a photo of the water height during the last flood. This floodplain area is totally covered with purple loosestrife and the outside contour of the invasive bed's reach is exactly that of high water in the photo. Seeds and plant parts travel easily by water as well as wind. The Lake Champlain watershed areas of Essex, Willsboro, and Westport are but a short wind and road distance from the Boquet watershed, and purple loosestrife can be found along large areas of the lake's shoreline.

Why some areas and not others? The Branch in Elizabethtown, as well as upstream and downstream of the hamlet, has Japanese knotweed and some loosestrife. Loosestrife is easily found along the main stem from Elizabethtown to the mouth. A few Japanese knotweed plants can be found near public fishing access areas on the main stem, and knotweed and garlic mustard are frequent in the floodplains downstream of Willsboro. But none of the four invasive plants are found along the North Branch. (Dennis Kalma reports he pulled up a single purple loosestrife plant near Spear Road on the North Branch.) Why is the North Branch free of these four invasive plants?

The North Branch flows through rural areas so there is less physical disturbance to soil and native vegetation. Also the railroad does not go through the North Branch watershed, and the portion of I-87 near this tributary is free of the four invasive plants. But, it appears only a matter of time. Small areas of purple loosestrife and phragmites plants are in Reber along roadsides, as well as just before the confluence of the North Branch and the main stem.

Not all invasive plants are unintentionally spread: During the inventory, we saw purple loosestrife in the middle of a vegetable garden, and Japanese knotweed alongside a front door. Obviously these were intentionally planted by persons admiring the beauty of the plants and flowers. All but a few garlic mustard stands were in the middle of hamlet areas where they also appeared to have been intentionally planted at an earlier time. More information to the public regarding invasive plants, and suggestions for colorful plant substitutes, is needed.

Education of Public Officials and Private Contractors: Invasive plants along roads, railroads, ditches, and stream corridors are not just an issue for landowners and highway departments. Knowledge about invasive plant identification, controls, equipment cleaning, and appropriate handling of spoils material must be communicated to public officials, developers, equipment contractors, cable companies, and spill response contractors.
