

# Natural Heritage & Endangered Species Program

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## Cobble Bar Forest (S2)

State Status: None  
Federal Status: None

**Description:** Cobble Bar Forests are represented by relatively young, open canopy forests with sycamore (*Platanus occidentalis*), cottonwood (*Populus deltoides*) and silver maple (*Acer saccharinum*) on cobble and sand substrate along the edges of high energy rivers.

**Environment:** These forests occur along seasonally flooded cobble shorelines of rivers that may also be disturbed by ice scour. In many cases, coarse sediments were deposited as glacial outwash within valleys now occupied by streams flowing through them. Groundwater flow is probably an important contribution to the community and river as water from adjacent uplands can be readily discharged through the coarse sediments into these streams. At the same time, water from the stream can recharge groundwater sources along the stream course. Oxygen levels in the water will be high as water bounces over, along, and through the coarse sediments.

**Characteristic and Indicator Species:** Along with the tree species listed above, the open canopy may include green ash (*Fraxinus pensylvanica*), several species of birch (*Betula allegheniensis* or *B. papyrifera*), ironwood (*Carpinus caroliniana*), or red oak (*Quercus rubra*). The shrub layer, usually with scattered plants, may include canopy dominants along with witch-hazel (*Hamamelis virginiana*). The herbaceous layer is diverse, with plants growing between cobbles and patches of sand. Typically the herbaceous layer includes native and exotic disturbance adapted species and annuals as well as perennials: sedges (*Carex* spp.), deer-tongue grass (*Dichanthelium clandestinum*), sensitive fern (*Onoclea sensibilis*), horsetail (*Equisetum* spp.), false Solomon's seal (*Maianthemum racemosum*), Virginia creeper (*Parthenocissus quinquefolia*), and poison ivy (*Toxicodendron radicans*). Invasive species can become dominant, forming dense cover in the shrub layer; often present are Japanese knotweed (*Fallopia japonica*, formerly *Polygonum cuspidatum*), Japanese barberry (*Berberis thunbergii*), bush honeysuckle (*Lonicera* spp.), and Oriental bittersweet (*Celastrus orbiculata*).

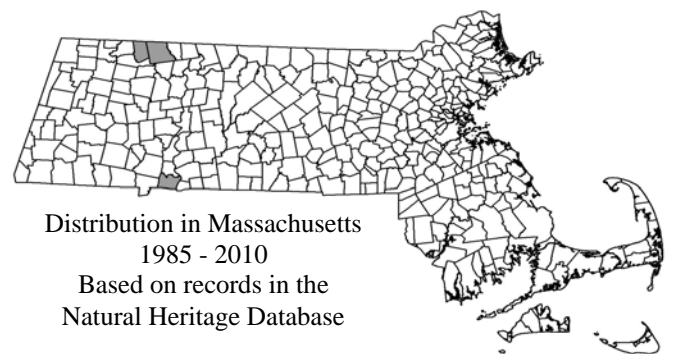
**Related Communities in Massachusetts:** Other floodplain communities including High-Terrace, Major River, Transitional and Small River Floodplain Forests



Narrow bands of Cobble Bar Forest on flood- and ice - scoured islands and riverbanks in a relatively low-gradient section of a quickly flowing. Map: MassGIS 2009 Orthophoto, data from NHESP.

generally occur on silt and mixed mineral and organic soil substrates. Sycamore is only dominant in Cobble Bar forests. Poplars are not found in Small River and Transitional Floodplain Forests.

Cobble Bar Forests are found in conditions similar to where High-Energy Riverbank Communities occur along high-energy rivers, but those are dominated by herbaceous and graminoid species.



**Range:** Cobble Bar Forests are found in streams with cobble substrate in the western and central parts of Massachusetts. Related community types have been described in other states that are cross referenced in NatureServe's Vegetation Classification under the association *Platanus occidentalis-Fraxinus pensylvanica*

(American Sycamore-Green Ash) Forest (also called Riverine Floodplain Forest (Early-Successional Type)). Similar communities have been documented in New Hampshire, Vermont, Connecticut, Rhode Island, New York, and Pennsylvania.

**Status in Massachusetts:** Cobble Bar Forests are ranked as S2 (Imperiled), meaning there are 6-20 occurrences in the state.

**Threats and Management Recommendations:** Primary threats include invasive species, alteration of the quantity, quality and timing of flows, and logging.

Roads, culverts and bridges are often armored for protection, and these structures can limit the ability of the stream to meander across the valley, limiting locations where energy can be discharged. Alterations in natural cover within the watershed can increase the amount and alter the timing and duration of storm flows. Surface discharges may increase water flows as well as causing erosion. Discharges from roads or culverts should have aprons to dissipate energy of storm water.

Alteration in groundwater flow may reduce base flow during the growing season. The use of fertilizers, pesticides and septic systems near rivers can increase the input of nutrients and pollutants into aquatic systems. Protection of sufficient upland buffer to help maintain natural flows and reduce siltation and entry of fertilizers or pesticides is important to maintaining the integrity of this, and other river and riverside communities.

Establishment of invasive species in the community is the greatest threat to it. If it is determined that invasive species need to be controlled, a plan should be developed, in consultation with the Massachusetts Natural Heritage and Endangered Species Program, to remove the invaders. All active management of any rare plant populations associated with this community is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage and Endangered Species Program.

**For More Information See:**

Manomet Center for Conservation Sciences. 2006. A guide to the natural communities of Massachusetts. Manomet Center for Conservation Sciences. Manomet, MA. URL: [http://www.communitymapper.org/natcom\\_resources.htm](http://www.communitymapper.org/natcom_resources.htm)

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Swain, P.C. and J.B. Kearsley. 2011. Classification of the Natural Communities of Massachusetts. Version 1.4. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Westborough, MA. URL: <http://www.mass.gov/dfwele/dfw/nhsp/nhclass.htm>

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