National Park Service
U.S. Department of the Interior
Acadia National Park

Managing Glossy Buckthorn in the Cromwell Brook Watershed of Acadia National Park

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Glossy (alder) buckthorn (*Rhamnus frangula*) is an exotic invasive plant that threatens Great Meadow, a 115-acre palustrine wetland in the Cromwell Brook watershed of Acadia National Park. Native to North Africa and Eurasia, it was introduced to the U.S. as a hedge and wildlife enhancement in the 19th century.

Glossy buckthorn quickly displaces native shrub species soon after invasion and may release chemicals into wetlands that kill young frogs.

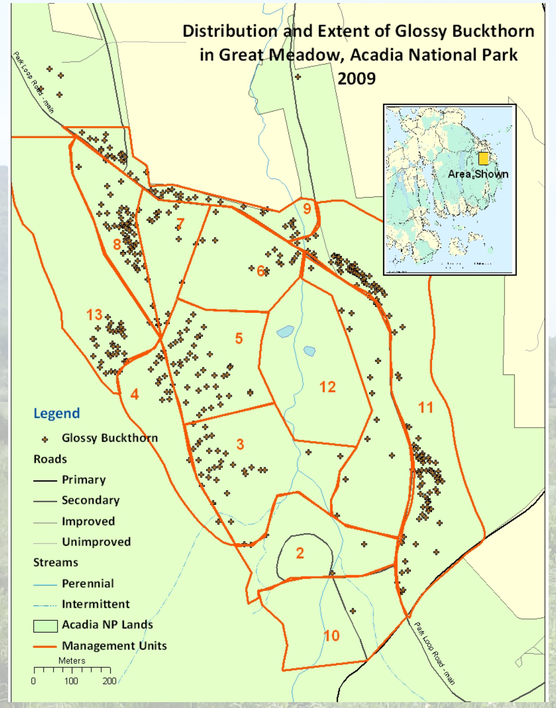
Management Methods Used

- Manual pulling young seedlings.
- Foliar application of herbicide (3% Rodeo or 3% Garlon 3A) using backpack and hand sprayers for plants below waist height.
- Cut-stem application of herbicide (25% Rodeo) using hand saw/loppers and hand sprayers for plants above waist height.



Exotic Plant Management Team member, Jim Burka, applies herbicide to the leaves of young glossy buckthorn in 2016. A 2-4 year old seedling can be seen in the foreground.
NPS Photo

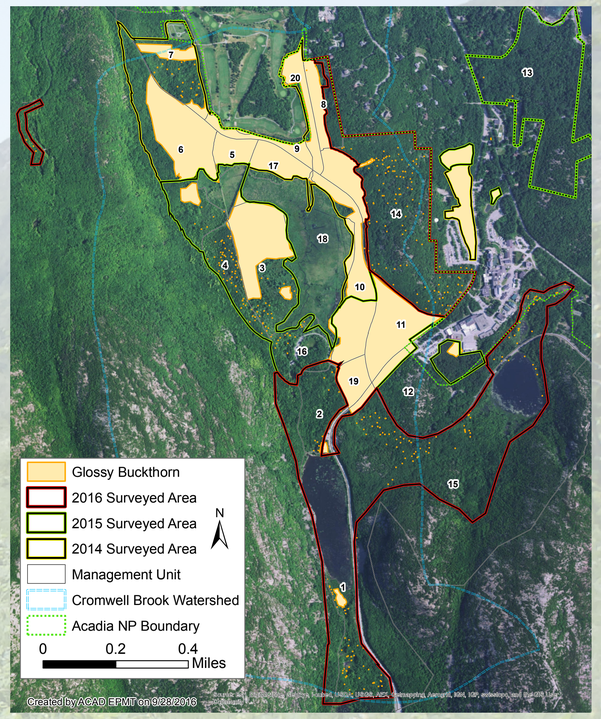
The Wild Acadia initiative, led by Friends of Acadia and supported by Canon, USA Inc., has allowed the NPS to rehabilitate and protect ecosystem function in the Cromwell Brook Watershed. Glossy buckthorn has been managed intensively now for nine years, since 2008.



First, we split up the Cromwell Brook Watershed into management units to facilitate efficiently treating the wetland.

Management Goals of Glossy Buckthorn

- Eliminate seed producing plants.
- Reduce its cover so that it is limited to stump sprouts on managed plants and seedlings arising from the seed bank.
- Document and eradicate any small, newly established populations found by park staff.



2014-2016 treatment areas of glossy buckthorn showing the status of current management units for the Cromwell Brook watershed.

	Non-reproductive stems		*Reproductive stems*		
Year	*Total stems*	*Average stems/m²*	*Total stems*	*Average stems/m²*	*Average % cover/m²*
2008	*846*	*7.03*	*9*	*0.07*	*n/a*
2016	*102*	*0.85*	*0*	*0*	*0.34*

2008 and 2016 results from glossy buckthorn monitoring transects located in treatment areas of Great Meadow, Acadia National Park.



Native rhodora blooming in May 2016 with glossy buckthorn encroaching in Great Meadow, Acadia National Park.
NPS Photo