

Nature's Ice Sculptures

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Nature displays different adaptations as plants and animals transition from one season to another. Some of these seasonal changes may go unnoticed, but as frequent cold fronts announce the arrival of winter, nature enthusiasts begin to keep an eye on an unusual display from a perennial woodland plant. Usually, after the first really cold morning of the year, when the air is crisp and temperatures hover below freezing, frozen formations may appear, sprouting from the base of individual plant stems. These natural ice sculptures are seasonal presents from frostweed.

Frostweed (*Verbesina virginica*) is a member of the sunflower family and is also known as Indian tobacco, iceplant, and iceweed. The plant prefers to grow in areas of dappled sunlight where it can form sizable colonies with its spreading rhizomes. Growing inconspicuously for most of the year along the riverbottom trails at the Nature Center, this plant can grow to be six feet tall. Frostweed begins to flower in late summer and through most of autumn, showcasing clusters of flowers with white ray petals that provide a great source of nectar for pollinators such as the monarch butterfly. Another distinguishable characteristic of this plant is the wing-like appendages that run the length of the stem, making it easier to spot and identify frostweed before the first good frost of the year.

The fragile, short-lived ice creations for which frostweed is known and that provide its common name appear under particular weather conditions, usually after the first hard freeze of the season. The air temperature must be below freezing, but the ground will still be warm enough for the plant's root system to still be active. The plant draws moisture from the roots up into the stem



A frostweed ice sculpture. FWNC&R Staff Photo.

where it is cooled by the surrounding icy air. The "sap" in the stem expands, breaking through the stem tissue, displaying the beginnings of icy creations as the water cools quickly and begins to freeze. As long as the plant's roots move moisture upward and outward to the opening, the ice sculpture will continue to form ribbonlike strands if the tissue split is small or form curling sheets of ice that appear like spun glass or cotton candy if the split is large. These frozen displays



Frostweed flowers in late summer. FWNC&R Staff Photo.

do not appear in all frostweed stems after a hard freeze. Specific microclimates created by nearby vegetation may buffer the crisp, cold air, plus mild winters may make conditions unsuitable for the plant to exhibit showy ice formations before the plant becomes dormant.

Nature has unusual demonstrations of its adaptability throughout the year that may be ephemeral and memorable. A plant such as frostweed may grow unnoticed during spring and early summer, only to later present an end-of-year surprise. With its noticeable fall blooms that attract late-season pollinators and formations of delicate ice sculptures during the transition into winter, frostweed is a must-see plant on your next fall visit to the Refuge—or a must-grow in your pollinator gardens.



A patch of frostweed outside the Hardwicke Interpretive Center. FWNC&R Staff Photo.