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WEATHER EFFECTS ON BROAD-LEAVED EVERGREENS, 2024 - 2025

These past seven months, from September 2024 through March 2025, have been perfect weather for drying, and maybe partial to total death, of broad-leaved evergreens such as American holly, *Leucothoe*, Japanese holly, Meserve holly, inkberry, boxwood, andromeda, large and small leaved rhododendrons and azaleas (Figure 1).

There are two types of evergreens: needled and broad-leaved. Needled evergreens such as spruce, fir and pine can keep their relatively small needles from 18 months up to four or more years. Broad-leaved evergreens are those plants that mostly keep their large leaves for 18 months. Thus, they require moisture during the winter, when moisture is not always available. Once the ground freezes, even though sun and wind on the foliage causes water to evaporate out of the leaves, that water cannot be replaced by water coming up the xylem from the roots in the soil. Consequently, the leaves bend downward. Leaf edges roll down and inward almost creating a cigar-like structure.

Transpiration is that process of water movement in plants from roots in the soil to the stomates in leaves. Water loss for plants is caused by the interaction of rainfall, high temperatures, sunlight, wind, and relative humidity. As you can see on the drought monitor maps on page 3, left column, most of Connecticut experienced moderate drought starting in late October with all of the state, except Southern New London County, severe drought in November with some relief in December and January from rainfall. In February most of the state was again in severe drought. Now in April, fifty percent of the state is in moderate drought with the northwest and southeast parts of the state abnormally dry.



Figure 1. Damaged large leaf rhododendron.

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In addition to low rainfall, higher than normal temperatures, shown in chart in right column on page 3, caused plants to lose water through transpiration that couldn't be replaced because of drought conditions in the soil. Winter '23 – '24 was much wetter than normal, but temperatures were a bit warmer than normal. Spring '24 was a bit wetter and warmer than normal. Summer '24 saw a shift to being a bit drier and warmer than normal. In Fall '24 this situation worsened with rainfall being over 8" below normal and temperatures just under 3°F above normal. By the winter of '24 – '25 the drought had lessened with 4" of rain in December. Temperatures were only 0.27°F above normal. Plants already dried out by winter conditions became even more stressed on March 19 when



Figure 2. Damaged large leaf rhododendron.

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Figure 3. Damaged *Leucothoe*.

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temperatures rose to 68°F from 56°F on March 18. Uptake of water by roots could not keep up with the water lost by evapotranspiration out of the stomates.

Injury to broad-leaved evergreens varied by species and location. The large leaf rhododendron, (Figure 2), shows a protected layer of foliage near the ground where snow covered the leaves. The *Leucothoe* (Figure 3) has a large percentage of its leaves brown and curled with some already on the ground.



Figure 4. Damaged Meserve holly.

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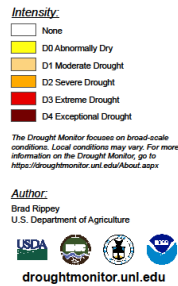
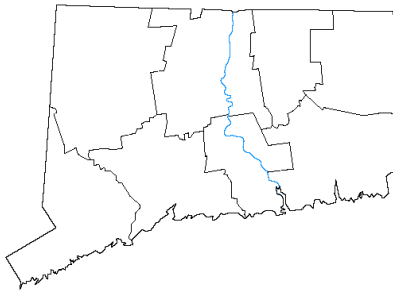


Figure 5. Damaged Japanese holly

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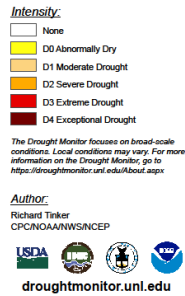
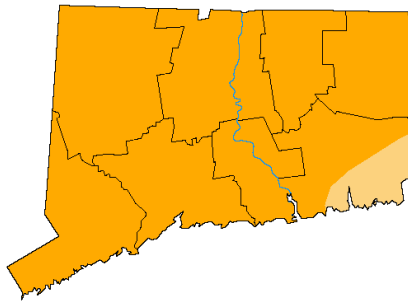
**U.S. Drought Monitor
Connecticut**

September 17, 2024
(Released Thursday, Sep. 19, 2024)
Valid 8 a.m. EDT



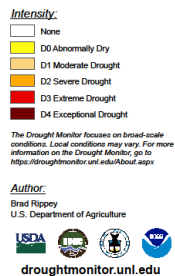
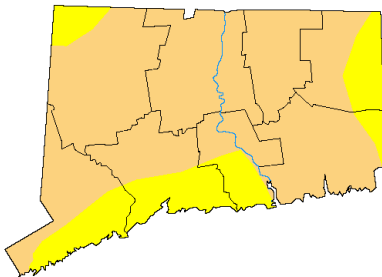
**U.S. Drought Monitor
Connecticut**

November 19, 2024
(Released Thursday, Nov. 21, 2024)
Valid 7 a.m. EST



**U.S. Drought Monitor
Connecticut**

March 25, 2025
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Valid 8 a.m. EDT



**December 2023 through February 2025
Temperature and Precipitation differences from
the 30-year NOAA* averages.**

	DATE	MLY-PRCP	2024	MLY-TEMP	2024
WNTR	23-Dec	3.75	8.04	33.8	34.21
	1	2.94	8.37	28.6	31.65
	2	2.57	1.87	30.8	34.58
		9.26	18.28	93.2	100.44
			plus 9.02	31.07	33.48
	wetter	warmer			2.41
SPRNG	3	3.51	6.49	38.6	43.88
	4	3.79	4.16	50	51.79
	5	3.43	3.23	60.5	64.45
		10.73	13.88	149.1	160.12
			plus 3.15	49.7	53.37
	wetter	warmer			3.67
SUMR	6	3.88	2.5	69.7	73.58
	7	3.87	1.18	75.2	77.94
	8	3.48	6.53	73.6	72.82
		11.23	10.21	218.5	224.34
			minus 1.02	72.83	74.78
	drier	warmer			1.95
FALL	9	3.97	0.65	65.8	66.32
	10	4.2	0.52	54	56.5
	11	3.44	2.3	43.3	48.46
		11.61	3.47	163.1	171.28
			minus 8.14	54.37	57.09
	drier	warmer			2.72
			2025		
WNTR	24-Dec	3.75	4.22	33.8	34.21
	1	2.94	0.93	28.6	28.96
	2	2.57	3.7	30.8	30.85
		9.26	8.85	93.2	94.02
			minus 0.41	31.07	31.34
	drier	warmer			0.27

*National Oceanic and Atmospheric Administration

The Meserve holly (Figure 4), is a streetside planting and has salt damage as well as winter drying. The curb is at the very bottom right of the photo. The Japanese holly, (Figure 5), is a seaside planting in Groton. It is very open to prevailing winds. You can see a matching plant further along the wall that is also discolored. Inexplicably, the large leaf rhododendron in this image is unharmed.

Some broad-leaved evergreens had less damage either because they are more winter hardy, are in a protected location or may have been better hydrated. The American holly, (Figure 6), is a 20+ foot tree with a red oak, pine and large serviceberry nearby creating a microclimate protected from winds. Damage is on the exposed, northern side of the plant. Inkberry plants (Figure 7) in a very open location with full exposure to winds and sun had little to no damage. The andromeda, *Pieris* sp., (Figure 8), is somewhat exposed but has little damage.

In the garden at the Valley Laboratory of The Connecticut Agricultural Experiment Station in Windsor, the small leaf rhododendrons were not harmed by the fall drought and winter conditions. 'PJM' is the cultivar of small leaf rhododendron (Figure 9).

MANAGEMENT: For plants already damaged, be sure to check for bud and stem health before pruning. Green firm flower and leaf buds, with



Figure 6. Slightly damaged American holly tree.

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turgid stems, may mean that after flowering you will have what looks like a new plant as evergreen rhododendrons and azaleas only hold their leaves for 18 months. Prune the plant back to a lower branch if no new leaves emerge after flowering time has passed.



Figure 7. No damage on inkberry.

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Figure 8. Minimal damage on andromeda.

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When possible, water plants in the fall if we do not get rain and drying conditions exist. Going into the winter with leaves fully hydrated will reduce the damage.

Do not apply fertilizers with readily available nitrogen in fall as they may promote soft growth that does not harden off before winter.

Make sure roots are healthy by treating them for any possible root weevil or root rot injury.

Fall pruning can cause buds behind the cut to break. The resulting growth will be soft and subject to winter injury. Spring flowering shrubs should be pruned after flowering but before next year's flower buds are formed.

Create a protected microclimate by installing green burlap leaving an inch exposed at ground level and the top open for air movement.



Figure 9. Undamaged small leaf *Rhododendron* 'PJM'.

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