NORTH CAROLINA FOREST SERVICE N C

Forest Health Notes

VOLUME **202002-GM** **October 2020**

2020-2021 Gypsy Moth Program Update

BACKGROUND

The Gypsy Moth Program. The gypsy moth program in N.C. is under the jurisdiction of the NCDA&CS – Plant Industry Division and we thank them for providing these results. North Carolina is on the leading edge of the expanding gypsy moth front. To prevent further establishment of gypsy moth in our state, traps are set annually for male gypsy moths using pheromone-baited traps (the lure mimics the sex pheromone produced by female gypsy moths). Through the **Slow the Spread (STS)** program, contractors trap the northern portion of N.C., while numerous cooperators trap the remainder of the state, including some overlap with STS counties. Trapping provides information about gypsy moth populations and enables decision-making with regards to efficient treatments.

Does 'Slow the Spread' really work?

The STS program is undeniably a success story.

- STS has reduced the spread of gypsy moth by 60% from the historical average of 21 km/yr to less than 9 km/yr.
- Without STS, gypsy moth would likely be established on 140 million additional acres.
- N.C. does not have gypsy moth defoliation events that other states within its range have.

William A. Carothers, USDA Forest Service, Bugwood.org

Determining Treatments. Because traps only indicate how many male moths are in an area, trap capture data cannot be used alone as a basis for treatment decisions. Determining where to treat and what treatment method to use is based on several factors: the previous year's trap counts, historical trap data in the area, and results from winter egg/pupal case surveys. When these data are combined, they reveal with more confidence whether a location is infested with a reproducing gypsy moth population (both males and females are present) or if the male moths were blown in during a weather event or some other phenomenon.

The two most common treatments used by the North Carolina Department of Agriculture and Consumer Services for controlling gypsy moth are environmentally friendly Btk and mating disruption.

***Bacillus thuringiensis* var. kustaki** (Btk) is a natural bacterium found in forest soils. It is applied to tree foliage early in the spring and is consumed by the caterpillars as they feed on leaves. It is toxic to the caterpillars but is safe for humans and animals. Btk is effective at all gypsy moth population densities.

Mating disruption (MD) uses a manufactured chemical compound that imitates the female gypsy moth sex pheromone (the chemical signal emitted by a female gypsy moth to attract a mate). MD treatments only target male gypsy moths. By saturating an area with pheromones, male moths cannot follow pheromone scent trails to locate breeding females which leads to decreases in mating success. This treatment is only effective at lower population densities.

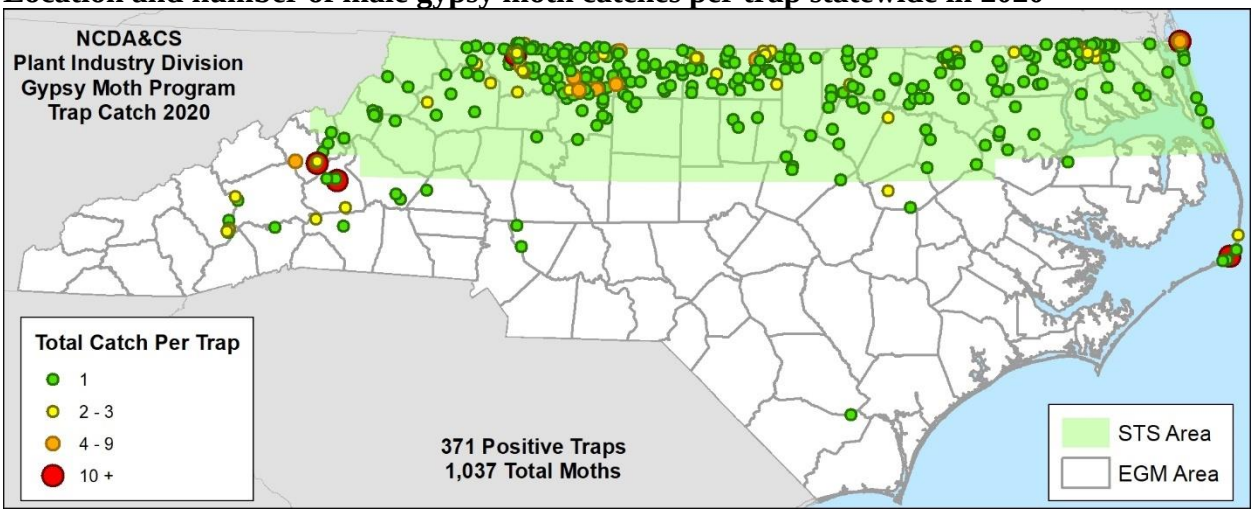
RESULTS

2020 Trapping Results. The 2020 trapping season produced slightly more positive trap captures than in 2019 (see table & map of trap capture locations below). For a list of trap catches by county, reference the table at the end of this publication.

Gypsy moth trap & treatment data from the last five years

	2020-21	2019-20	2018-19	2017-18	2016-17
Total moths captured	1,037	1,019	594	1,628	7,235
Number of positive traps	371	507	343	881	3,172
Total traps placed	16,577	17,615	18,003	18,772	17,897
Number of treatments	5 (proposed)	7	1	11	6
Total acreage of treatments	8115 (proposed)	18,551	1,095	118,169	27,865

Location and number of male gypsy moth catches per trap statewide in 2020



Map by C. Buddenbaum, NCDA&CS.

Proposed 2021 Treatments. Based on the 2020 trap captures and previous winter surveys, five mating disruption treatments totaling 7,664 acres and one Btk treatment totaling 451 acres are proposed for late spring/early summer 2021. Final treatment sites and acres will be determined based on costs and available funding. Updated treatment information will be found at: http://www.ncagr.gov/plantindustry/Plant/entomology/ProposedGypsyMothTreatments.htm

BLOCK NAME	COUNTY	ACRES	TREATMENT TYPE
Buxton	Dare	451	BTK
Celo	Yancey	2,485	Mating disruption
Lamsburg	Surry	2,084	Mating disruption
Marion West	McDowell	1,334	Mating disruption
Mount Mitchell	Yancey	1,761	Mating disruption

2020 Gypsy moth trap catches by county.

County	Traps	Positive Traps	Moths
Alamance	176	0	0
Alexander	78	0	0
Alleghany	157	5	6
Anson	147	0	0
Ashe	280	2	2
Avery	72	1	1
Beaufort	203	0	0
Bertie	299	3	3
Bladen	246	1	1
Brunswick	1	0	0
Buncombe	161	2	3
Burke	142	2	2
Cabarrus	106	2	2
Caldwell	148	4	4
Camden	137	9	9
Carteret	123	0	0
Caswell	289	19	28
Catawba	120	1	1
Chatham	199	0	0
Cherokee	97	0	0
Chowan	81	1	1
Clay	40	0	0
Cleveland	133	0	0
Columbus	199	0	0
Craven	178	0	0
Cumberland	171	0	0

County	Traps	Positive Traps	Moths
Currituck	195	12	489
Dare	238	12	47
Davidson	164	0	0
Davie	85	1	1
Duplin	225	0	0
Durham	119	0	0
Edgecombe	147	3	3
Forsyth	206	9	9
Franklin	213	4	4
Gaston	111	0	0
Gates	232	21	32
Graham	33	0	0
Granville	328	6	6
Greene	76	0	0
Guilford	267	3	3
Halifax	446	8	8
Harnett	162	0	0
Haywood	107	7	12
Henderson	99	1	1
Hertford	224	8	8
Hoke	66	0	0
Hyde	137	0	0
Iredell	175	0	0
Jackson	106	0	0
Johnston	223	0	0
Jones	118	0	0

2020 Gypsy moth trap catches by county (continued)

County	Traps	Positive Traps	Moths
Lee	67	0	0
Lenoir	109	0	0
Lincoln	87	0	0
Macon	92	0	0
Madison	111	0	0
Martin	124	3	3
McDowell	104	7	37
Mecklenburg	171	0	0
Mitchell	60	2	2
Montgomery	126	0	0
Moore	199	0	0
Nash	170	2	3
New Hanover	56	0	0
Northampton	357	19	23
Onslow	169	0	0
Orange	178	3	3
Pamlico	92	0	0
Pasquotank	148	4	4
Pender	170	0	0
Perquimans	146	1	1
Person	247	17	24
Pitt	182	0	0
Polk	61	0	0
Randolph	222	0	0

County	Traps	Positive Traps	Moths
Richmond	123	0	0
Robeson	260	0	0
Rockingham	387	27	38
Rowan	151	0	0
Rutherford	151	2	3
Sampson	267	0	0
Scotland	90	0	0
Stanly	114	0	0
Stokes	319	43	63
Surry	387	41	66
Swain	38	0	0
Transylvania	65	0	0
Tyrrell	74	0	0
Union	183	0	0
Vance	189	9	12
Wake	248	5	5
Warren	303	9	9
Washington	92	1	1
Watauga	175	4	4
Wayne	163	0	0
Wilkes	432	7	9
Wilson	115	2	3
Yadkin	189	0	0
Yancey	129	16	38
Total	16,577	371	1037

For updates on North Carolina's gypsy moth Gypsy Moth Program, visit:
http://www.ncagr.gov/plantindustry/Plant/entomology/GM.htm

The N.C. Forest Service is a division of the N.C. Department of Agriculture and Consumer Services.
Steve Troxler, Commissioner.