ANALYSIS OF GYPSY MOTH POPULATIONS

Cooperative STS Gypsy Moth Project
For Indiana - 2020

Gypsy moth is moving into northern Indiana from the infestations in Michigan and Ohio. Its movement is by natural spread and short distance transport by human activities. To detect the introduction of this pest, the State of Indiana has surveyed since 1972. From 1988 to 1998 the survey used a one-mile grid in the northern third of Indiana and a two-mile grid in the remainder of the state. In 1999, Indiana adopted the Slow-The-Spread (STS) survey protocol developed by the USDA Forest Service. Traps are set in detection (2K, 3K, 5K & 8K) and delimit (250M, 500M or 1K) grids and organized into the STS Evaluation, STS Action and State area north to south, respectively, across the state. The 2019 survey set 9,685 detection traps and 1,372 delimit traps, for a total of 11,057 traps set across the state. Part of 8 and all of 7 counties in the state area were not trapped in 2019. Areas are not trapped for economic reasons, but also because of negative trap catches in previous years. The areas of the state that are not trapped changes each year so that no areas are left without traps in subsequent years

The STS analysis of the 2019 trapping data in Indiana identified potential problem areas (PPA's) at 48 locations in Indiana. The analysis identified higher or equivalent moth catches in delimiting survey grids placed at each site compared to detections and delimits in prior years and recommended action in these areas. In addition to the data from the STS analysis, field survey by Indiana DNR staff detected multiple life stages at two PPA locations. Indiana DNR and USDA, Forest Service staff reviewed this information and determined which PPA's should have a STS treatment, and which treatment options should be applied. This information, along with locations of gypsy moth habitat within those PPA's, was then used to define where treatment boundaries would be designated for those areas. In several areas identified by the analysis, the decision to delimit the area was chosen due to a lack of multiple life stages found and/or lack of habitat. The four proposed treatment sites in three counties in the STS Action Area are based on the trapping surveys, STS analysis, egg mass detections and available habitat.

Table 1 & Figure 1 show the three northern counties with proposed treatment sites and the mean number of gypsy moths caught in detection traps between 2015 and 2019. The mean number of moths has fluctuated in the three northern counties over the past five years.

Map 1 shows the 1, 3, 10, 30 and 100 moth lines (south to north, respectively) and the potential problem areas based on STS analysis of the 2019 data. This analysis places the STS action zone below the 10-moth line. The 1, 10 and 100 moth lines and action zone are indicated by arrows on the map.

Map 2 and 3 show the number of gypsy moths detected in each county for 2018 and 2019, respectively.

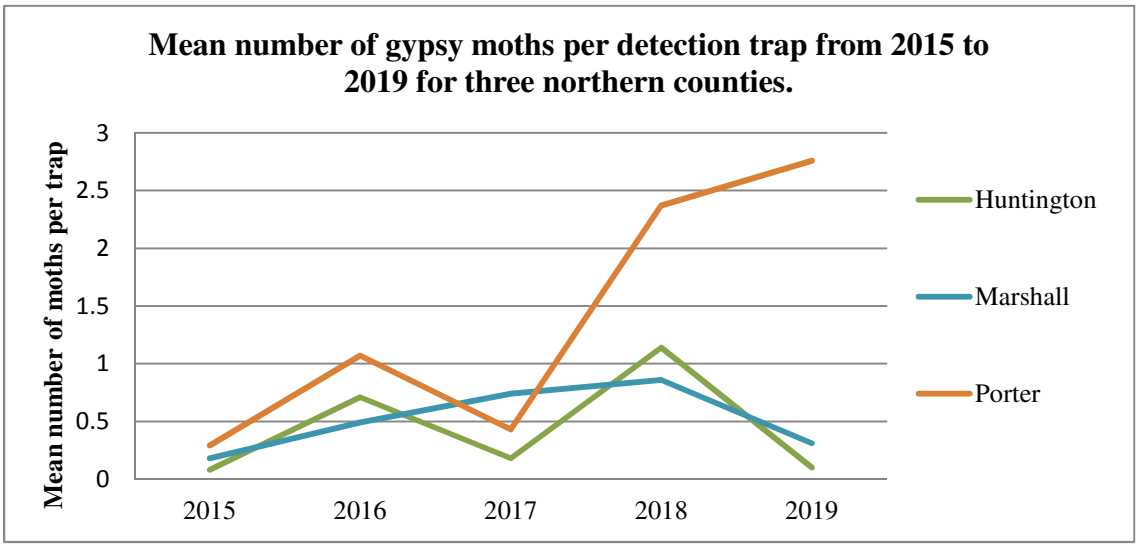
Map 4 shows the 10-moth line in Indiana from 2015-2019.

The Gypsy Moth analysis and trapping data can be viewed at the STS website.

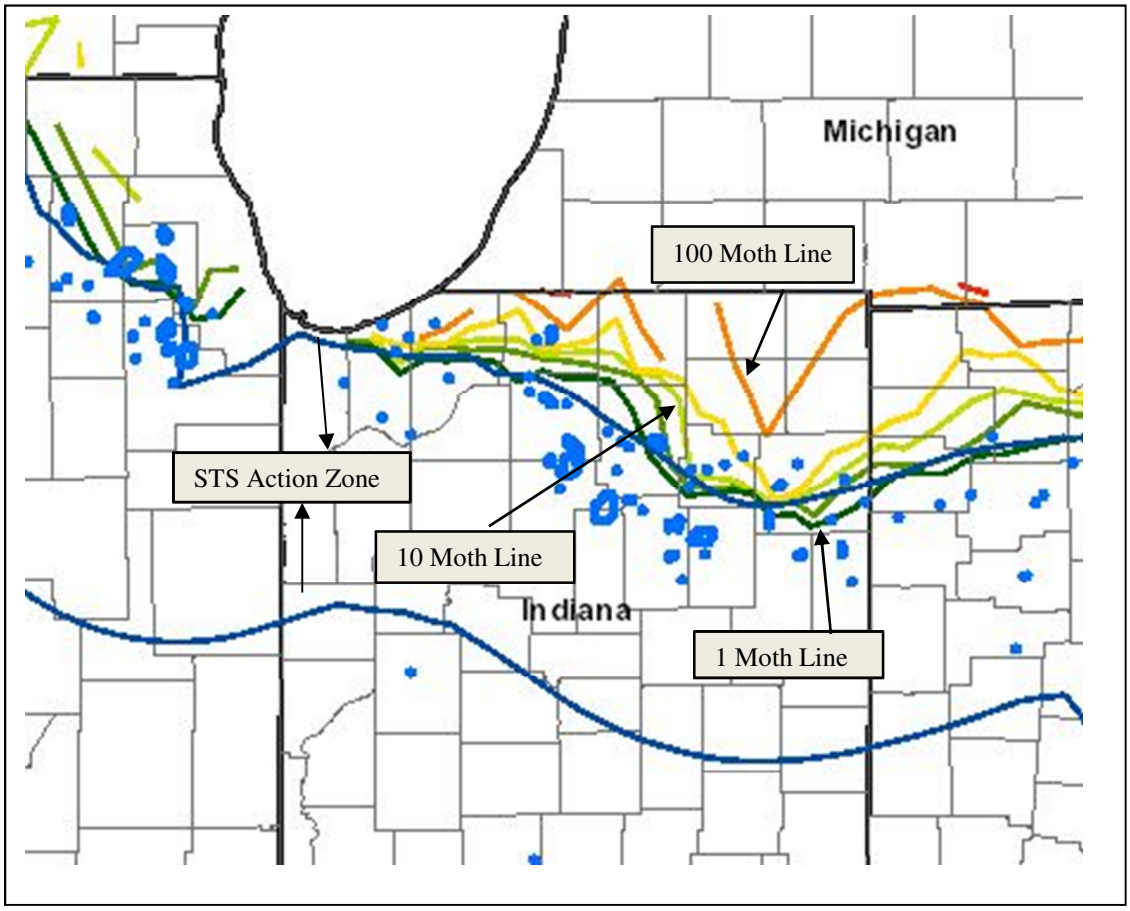
Table 1. Mean number of gypsy moths per detection trap (milk carton and delta) in the proposed counties for 2015 to 2019.

County	2015	2016	2017	2018	2019
Huntington	0.08	0.71	0.18	1.14	0.10
Marshall	0.18	0.49	0.74	0.86	0.31
Porter	0.29	1.07	0.43	2.37	2.76

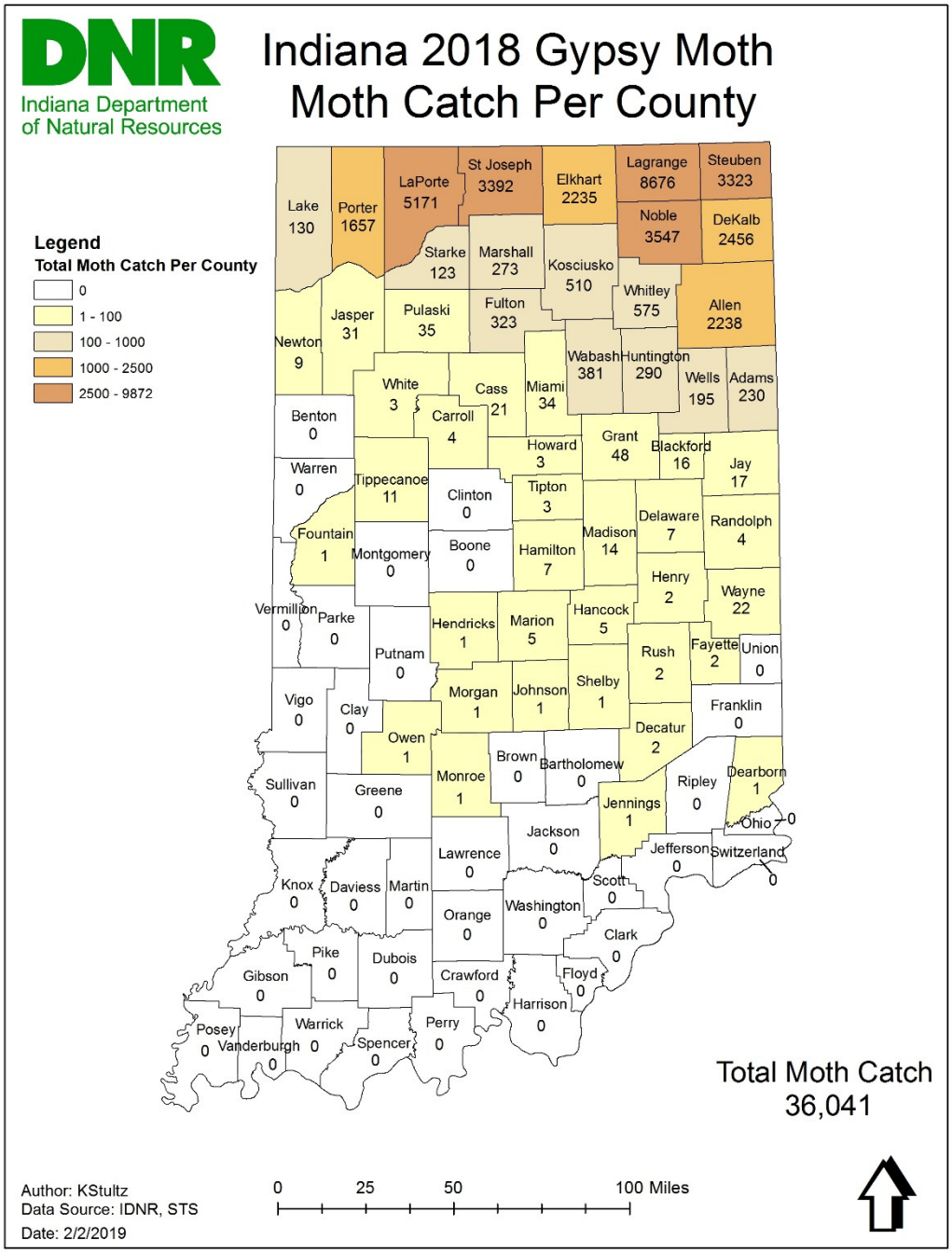
Figure 1. Mean number of gypsy moths per detection trap from 2015 to 2019 for the proposed counties.



Map 1. Results of the 2019 Gypsy Moth Slow-The-Spread Analysis showing moth lines, potential problem areas (blue outline areas) and the STS Action Zone for northern Indiana.



Map 2. Male moth catches by county for 2018.



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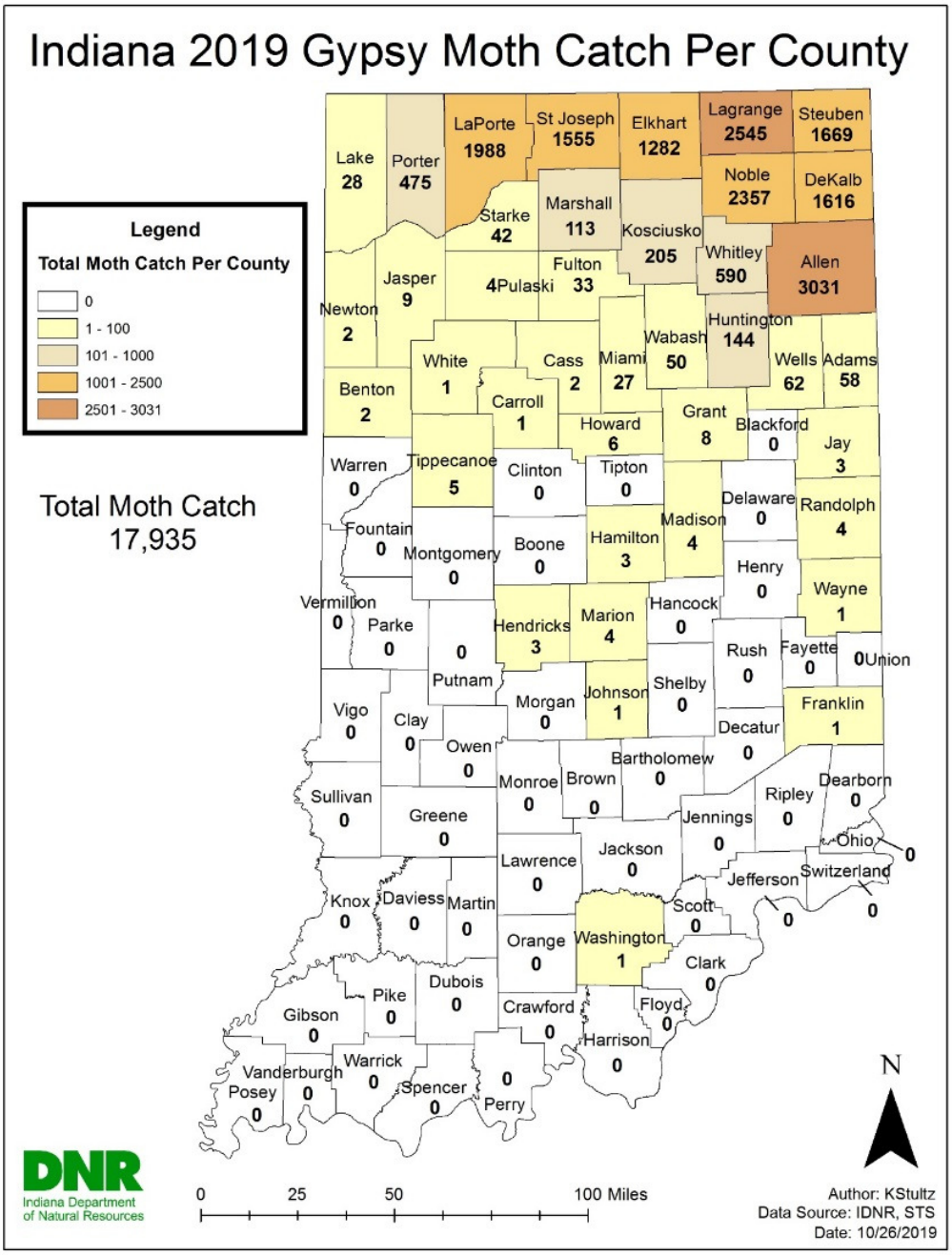
Map 3. Male moth catches by county for 2019.



Map 4. The 10-moth line of Gypsy Moth in Indiana from 2015 to 2019.