

## Northeastern Sawyer

*Monochamus notatus* (Drury)

Coleoptera: Cerambycidae

Safranyik, L.; Raske, A. G. 1970. Sequential sampling plan for larvae of *Monochamus* in lodgepole pine logs. *Journal of Economic Entomology* 63: 1903-1906.

**Objective:** To develop a sequential sampling plan for classifying the severity of damage from *M. notatus* on scattered and decked lodgepole pine, *Pinus contorta* Douglas var. *latifolia* Engelmann, logs.

**Abstract:** The northeastern sawyer breeds primarily in dead and dying eastern white pine, *Pinus strobus* L., balsam fir, *Abies balsamea* L., and red spruce, *Picea rubens* Sarg. Young larvae feed on the inner bark, cambium, and outer sapwood, while older larvae bore deep into the heartwood. Damage results in windthrow, and degradation of sawlogs and pulpwood stored improperly.

A sequential sampling plan is presented for classifying the severity of damage by larvae of *M. notatus* to decked and scattered lodgepole pine logs. Infestation classes are based on the number of borer holes per 929 cm<sup>2</sup> of bark surface and classified as light, medium, or heavy infestations. Sampling is confined to the infested outer portion of the decks and to the 10 o'clock and 2 o'clock positions of individual logs (12 o'clock being the top portion directly visible to the observer).

**Sampling Procedure:** Before the sampling plan is used, it should be determined whether the whole deck or just the top, outer, or exposed logs are infested. There is a tendency for decks with small diameter logs to be partially infested, while decks with large logs or logs stacked loosely to be infested throughout. Only *Monochamus* larval entrance holes are counted in the sample. Sampling is conducted in September when oviposition is completed and additional fresh attacks are unlikely.

Remove one sample of bark, 15.2 by 61 cm, with the long axis parallel to the grain from each log in the deck. The sample should be selected from the 10 o'clock or 2 o'clock position (i.e., 12 o'clock position being the top of the log directly visible to the observer). Count and record the number of entrance holes, reference the sequential sampling plan (Table 1), and continue sampling until a decision is met. Infestation severity will be classified into one of three categories: light ( $\leq 0.5/929$  cm<sup>2</sup>), medium (1.0/929 cm<sup>2</sup> -1.5/929 cm<sup>2</sup>), and heavy ( $\geq 3.0$  entrance holes/929 cm<sup>2</sup>) (Table 1).

**Note:** The original paper contains information regarding economic losses that is no longer applicable in today's markets.

**Table:**

Table 1. Sequential sampling table for classifying the severity of *Monochamus* damage to lodgepole pine logs.

| No. of sample units | Cumulative no. woodborer holes |          |                   |                   |          |                  |
|---------------------|--------------------------------|----------|-------------------|-------------------|----------|------------------|
|                     | Light ( $\leq$ )               | Continue | Medium ( $\geq$ ) | Medium ( $\leq$ ) | Continue | Heavy ( $\geq$ ) |
| 1                   | —                              |          | —                 | —                 |          | 12               |
| 2                   | —                              |          | —                 | —                 |          | 14               |
| 3                   | —                              |          | —                 | —                 |          | 16               |
| 4                   | —                              |          | —                 | —                 |          | 18               |
| 5                   | —                              |          | —                 | —                 |          | 20               |
| 6                   | —                              |          | —                 | —                 |          | 23               |
| 7                   | —                              |          | —                 | —                 |          | 25               |
| 8                   | 0                              |          | —                 | —                 |          | 27               |
| 9                   | 1                              |          | —                 | —                 |          | 29               |
| 10                  | 1                              |          | —                 | —                 |          | 31               |
| 11                  | 2                              |          | 13                | 13                |          | 33               |
| 12                  | 3                              |          | 14                | 15                |          | 35               |
| 13                  | 3                              |          | 15                | 17                |          | 37               |
| 14                  | 4                              |          | 15                | 19                |          | 40               |
| 15                  | 5                              |          | 16                | 22                |          | 42               |
| 16                  | 5                              |          | 17                | 24                |          | 44               |
| 17                  | 6                              |          | 18                | 26                |          | 46               |
| 18                  | 7                              |          | 18                | 28                |          | 48               |
| 19                  | 8                              |          | 19                | 30                |          | 50               |
| 20                  | 8                              |          | 20                | 31                |          | 52               |
| 21                  | 9                              |          | 20                | 34                |          | 54               |
| 22                  | 10                             |          | 21                | 36                |          | 56               |
| 23                  | 10                             |          | 22                | 38                |          | 59               |
| 24                  | 11                             |          | 23                | 41                |          | 61               |
| 25                  | 12                             |          | 23                | 43                |          | 63               |
| 26                  | 13                             |          | 24                | 45                |          | 65               |
| 27                  | 13                             |          | 25                | 47                |          | 67               |
| 28                  | 14                             |          | 25                | 49                |          | 69               |
| 29                  | 14                             |          | 26                | 51                |          | 71               |
| 30                  | 15                             |          | 27                | 53                |          | 73               |
| 31                  | 16                             |          | 27                | 55                |          | 75               |
| 32                  | 17                             |          | 28                | 57                |          | 77               |
| 33                  | 17                             |          | 29                | 59                |          | 80               |
| 34                  | 18                             |          | 30                | 62                |          | 82               |
| 35                  | 19                             |          | 30                | 64                |          | 84               |
| 36                  | 19                             |          | 31                | 66                |          | 86               |
| 37                  | 20                             |          | 32                | 68                |          | 88               |
| 38                  | 21                             |          | 33                | 70                |          | 90               |
| 39                  | 22                             |          | 33                | 72                |          | 92               |
| 40                  | 22                             |          | 34                | 74                |          | 94               |

Table 1 reprinted with permission from the Journal of Economic Entomology, January 15, 2001.