

Stephen F. Austin State University

SFA ScholarWorks

Faculty Publications

Forestry

1975

Notes on *Nosodendron Californicum* Horn on Slime Fluxes of Grand Fir, *Abies Grandis* (Douglas) Lindley, in Northern Idaho (Coleoptera: Nosodendridae)

David Kulhavy

Arthur Temple College of Forestry and Agriculture, Stephen F. Austin State University,
dkulhavy@sfasu.edu

Harold Osborne

Follow this and additional works at: <https://scholarworks.sfasu.edu/forestry>



Part of the [Forest Sciences Commons](#)

[Tell us](#) how this article helped you.

Repository Citation

Kulhavy, David and Osborne, Harold, "Notes on *Nosodendron Californicum* Horn on Slime Fluxes of Grand Fir, *Abies Grandis* (Douglas) Lindley, in Northern Idaho (Coleoptera: Nosodendridae)" (1975). *Faculty Publications*. 381.

<https://scholarworks.sfasu.edu/forestry/381>

This Article is brought to you for free and open access by the Forestry at SFA ScholarWorks. It has been accepted for inclusion in Faculty Publications by an authorized administrator of SFA ScholarWorks. For more information, please contact cdsscholarworks@sfasu.edu.

NOTES ON *NOSODENDRON CALIFORNICUM* HORN ON
SLIME FLUXES OF GRAND FIR, *ABIES GRANDIS*
(DOUGLAS) LINDLEY, IN NORTHERN IDAHO
(COLEOPTERA: NOSODENDRIDAE)¹

HAROLD L. OSBORNE AND DAVID L. KULHAVY^{2,3}

College of Forestry, Wildlife and Range Sciences,
University of Idaho, Moscow, Idaho 83843

ABSTRACT

Adults and larvae of *Nosodendron californicum* Horn were observed and collected from sap exudations on and adjacent to frost cracks of *Abies grandis* (Douglas) Lindley. This is the first published record of this species in Idaho and east of the Cascade Range in the Pacific Northwest.

INTRODUCTION

The habitat-niche of *Nosodendron californicum* Horn in the western United States is delimited as slime fluxes (i.e., infected sap exudations from tree wounds) of white fir, *Abies concolor* (Gord. and Glend.) Lindl. (Hayes and Chu, 1946, and Sokoloff, 1959), grand fir, *Abies grandis* (Douglas) Lindley (= *Picea grandis* in Fletcher, 1902), and the California black oak, *Quercus kelloggii* Newb. (Sokoloff, 1959, 1964). Records of *N. californicum* in the West are California (Arnett, 1968), southwest British Columbia, western Washington, and southwestern Oregon (Hatch, 1961).

GENERAL OBSERVATIONS

Three adults were taken from frost cracks of grand fir, *Abies grandis*, that were exuding sap in June, 1972. This is the first record of *N. californicum* for Idaho and the region east of the Cascade Range in the West. The following year, grand fir trees were examined, and adults and larvae were collected on sap exudations from frost cracks on 15 trees. These trees had fruiting structures of *Echinodontium tinctorium* (Ell. and Ev.) Ell. and Ev., the Indian paint fungus which causes a severe heartrot of grand fir in Idaho. Trees ranged from 30-35 cm in diameter (breast height) and were greater than 120 years in age. Host trees were found in the mixed conifer forest of the *Abies grandis*/*Pachistima myrsinites* (Pursh) Raf. and *Thuja plicata* Donn/*Pachistima myrsinites* habitat types (Daubenmire and Daubenmire, 1968).

One host grand fir (Fig. 1) was selected for study and observation of *N. californicum* throughout the 1973 field season (5 July to 24 September 1973). Temperature recordings and observations were made periodically throughout the summer. Sap exudation was underway when the first observation of the beetles were made. By early July, adults and 3 larval instars were observed on the frost crack exudations up to 1 m above the root collar.

¹Published with the approval of the Director, Forest, Wildlife and Range Experiment Station, University of Idaho, Moscow, Idaho.

²Research Assistant and Graduate Assistant respectively.

³Supported in part by a Stillinger Memorial Grant.

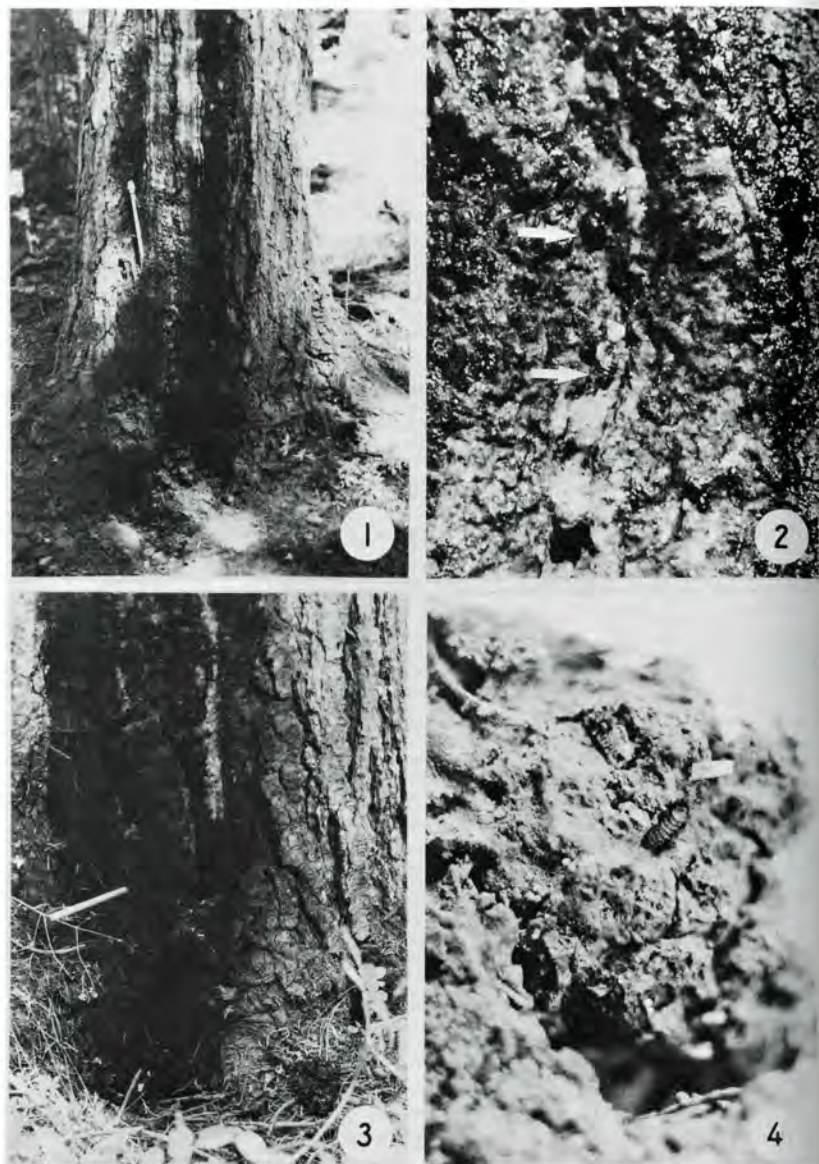


Fig. 1-4. Habitat of *Nosodendron californicum*: 1) trunk of host tree of *Abies grandis*, showing a characteristic frost crack with sap exudation; 2) close up of frost crack in Fig. 1, showing exudations and *N. californicum* adult and larva (arrows); 3) close up of exudation puddle at base of host tree taken in late summer (overwintering site); 4) larval overwintering site in clayish surface soil found at the frost crack base.

Adults and larvae are cryptic and were found covered with sap exudations within 2 cm of the center of the frost crack (Fig. 2). However, greater numbers of adults and larvae were found throughout a moistened mass of grand fir needles and decomposing litter with accumulated sap exudations at the base of the frost crack (Fig. 3). The pH value of the sap exudate varied from 4.0 to 6.0 throughout the summer. The maximum extent of the exudate puddle at the base of the frost crack was $9 \times 25 \times 4$ cm deep with the beetles found throughout this area. As the season progressed, the volume of exudate from the frost crack decreased as moisture relations within the forest became more severe. By mid-August, adults and larvae were no longer present on the frost crack, but were confined to the damp litter and duff at the base of the host tree where the frost crack exudate had drained. As the exudate puddle dried out, adults and larvae of *N. californicum* became inactive and were found incrusting in the decomposed litter and clayish surface soil at the base of the host tree. Adults and larvae were observed in this condition by early September. Observations were made again in mid-March 1974, and adults and larvae were found still incrusting in the soil (Fig. 4) and against the tree bole between the root collar and the clayish soil from 2 to 8 cm below ground level. Observations on adult and larval behavior are being continued throughout the 1974 season. Distribution of the beetle is being studied throughout northern Idaho, Washington, and Oregon.

ACKNOWLEDGEMENTS

Thanks are extended to: J. M. Kingsolver for identification of the initial specimen in 1972; W. F. Barr, R. W. Stark, and E. R. Canfield for review of the manuscript.

REFERENCES

- ARNETT, R. H., JR. 1968. The beetles of the United States (a manual for identification). Amer. Ent. Inst., Ann Arbor, Michigan. xii + 1112 p.
- DAUBENMIRE, R. AND JEAN. 1969. Forest vegetation of eastern Washington and northern Idaho. Washington State Univ. Agr. Exp. Sta. Tech. Bull. 60:1-104.
- FLETCHER, J. 1902. The entomological record, 1901. 32nd Ann. Rep. Ent. Soc. Ontario 1901:99-109.
- HATCH, M. H. 1961. The beetles of the Pacific northwest. Part III: Pselaphidae and Diversicornia I. Univ. Washington Press, Seattle. 503 p.
- HAYES, W. P., AND H. F. CHU. 1946. The larvae of the genus *Nosodendron* Latr., (Nosodendridae). Ann. Ent. Soc. Amer. 39:69-79.
- SOKOLOFF, A. 1959. The habitat-niche of American Nosodendridae. Coleop. Bull. 13(4):97-98.
- SOKOLOFF, A. 1964. Studies on the ecology of *Drosophila* in the Yosemite region of California. V. A preliminary survey of species associated with *D. pseudoobscura* and *D. persimilis* at slime fluxes and banana traps. Pan-Pac. Ent. 40(4):203-218.



SYMMETRY AND PROPORTION IN DRAWINGS:
AN ACCURATE AND REFINED METHOD

JULIO MICHELI

Departamento de Bellas Artes,
Universidad Católica de Puerto Rico, Ponce, P.R. 00731

Today biologists usually have a good camera, probably a 35 mm single lens reflex type. This method makes use of such a camera and a 35 mm slide projector. There is no need to obtain a special second camera and no need for the opaque projector. Depending on the size of the specimen, one of the following items is needed: a close-up lens, a set of extension tubes or bellows, or a camera-to-microscope adapter.

There are 2 alternatives. Black and white reversal film or color transparency film may be used. I recommend using color film for 2 reasons. The color transparency may be kept as an excellent record, and it is convenient for comparing color when one is doing color illustrations. Black and white reversal film is less expensive and faster and may become indispensable when working with the microscope at high magnifications, due to its higher speed. With black and white film it will be easier to compare tone values. The final decision on which film to use will depend on individual need, artistic ability, and budget.

For color I recommend using a low speed daylight film with negligible grain. Use direct sunlight for illuminating the subject. There is no need for special lights and color rendition is normally more accurate. Reflectors, such as white paper, crumpled aluminum foil, or a mirror may be placed on the other side of the subject. One can experiment with various reflectors until the desired effect is obtained. One may even keep out of direct sunlight (protecting camera and film) by working in the shade, while using a mirror at some distance to reflect light on the specimen. A faster color film may be used when working with the microscope.

Accurate symmetry in the drawing is usually desired in top views. One should try to arrange the specimen to look as symmetrical as possible. With Coleoptera, for example, head, pronotum, and elytra should fall symmetrically on a head to tail axis. It is only necessary to arrange legs, antennae, and palpi on 1 side of the body. In some cases horns and mandibles may be treated the same way.

The actual method for making the drawing follows: Take a sheet of tracing paper and draw a straight line down the middle. With adhesive tape or other means secure the paper to a sheet of white illustration board. Secure both to a flat vertical surface (such as a wall) at the appropriate height corresponding to the height of the projector. Project the transparency unto the paper. Adjust the distance between projector and paper until the correct size image is obtained. Focus. Make sure the axis of the projected image coincides with the axial line on the paper. Draw one side of the specimen. Check the actual specimen in case corrections are necessary. Remove paper from the board and fold on the middle line. Trace the drawing on the other side of the line. Once completed, turn the drawing paper over and secure it to the final illustration paper or board. Trace by pressing hard with pencil or ball-point on the lines seen through the tracing paper. Carbon paper or graphite transfer paper may be used instead to obtain a stronger line when transferring the drawing from the tracing paper to the final illustration surface. The drawing is now ready to be inked.

A variation of the method is to project the image directly onto the final illustration surface (do not forget the line down the middle) and drawing 1 side of the specimen. Then take tracing paper trace the drawing, turn over the tracing paper and secure it to the illustration surface making sure both sides fit together. Transfer the second half. Ink the final drawing.

114

THE COLEOPTERISTS BULLETIN

SERIALS DEPT.

AN INTERNATIONAL JOURNAL DEVOTED TO
THE STUDY OF BEETLES APR 21 1975

VOLUME 29, NUMBER 1

MARCH, 1975

LIBRARY

SFA STATE UNIVERSITY

BUPRESTIDAE: <i>Basalis</i> group of <i>Chrysobothris</i> by G. H. Nelson	1-30
STAPHYLINIDAE: Holotype disposition by Ian Moore	30
FAMILY-GROUP NAMES: Priority by J. C. Watt	31-34
STAPHYLINIDAE: New Mexican <i>Quedius</i> by A. Smetana	35-38
TENEBRIONIDAE: New cave taxa by C. A. Triplehorn	39-43
CERAMBYCIDAE: Fecundity note by A. J. Mullins	43
CLERIDAE: Prolonged diapause by J. A. Powell	44
TRAPS: Baited pitfalls by A. Newton & S. B. Peck	45-46
CARABIDAE: Glacier Nat. Pk. by J. G. Edwards	47-58
CERAMBYCIDAE: Virginia, Pt. III by R. H. Perry	59
MINUTES OF NATIONAL MEETING	61-63
TREASURER'S REPORT	63-64
LITERATURE NOTICES & BOOK REVIEWS	58, 60
NOTICE	38

Edited By: Robert E. Woodruff

Mailing date for this issue: March 28, 1975

