

FIRST NORTH AMERICAN RECORDS OF
EPINOTIA ABBREVIANA (TORTRICIDAE),
A EUROPEAN PEST OF *ULMUS* SPECIES

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ABSTRACT. *Epinotia abbreviana* (Fabricius), recently found established in Newfoundland, Canada, is described and diagnosed, with illustrations of genitalia and wings.

Additional key words: diagnosis, distribution, host plant, genital structure, Newfoundland.

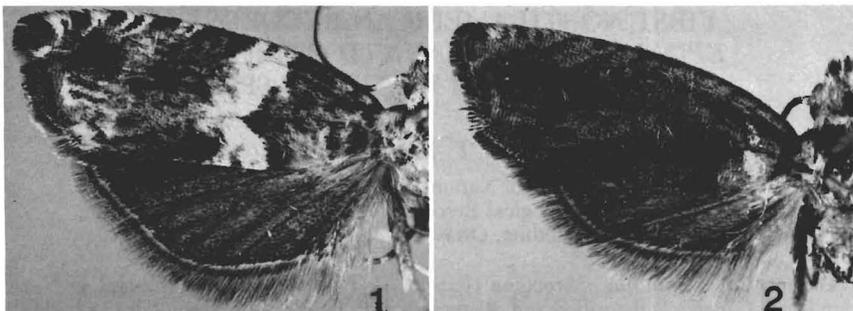
Epinotia abbreviana (Fabricius) is native to Europe. The larval stages of this species feed on various species of *Ulmus* (Ulmaceae). Two male specimens were reared from larvae collected in 1981 on elm in St. John's, Newfoundland, Canada; in 1988 two females were reared from larvae collected on *Ulmus rubra* Muhl. in Bowring Park, St. John's. The second collection indicates that this species has become established in the area.

Both series of specimens were collected by personnel of the Forest Insect and Disease Survey (FIDS) from Forestry Canada's Newfoundland and Labrador Region. The species was identified by the author based on detailed examinations of all four specimens. Specimens collected from England (1 ♂) and Germany (1 ♀) also were examined to lend further support to the identification.

The description, illustrations, photographs, and review of biological aspects of this species provided in this article will help researchers to recognize and identify the pest. This information will be particularly useful for surveying and monitoring the species in St. John's and neighboring areas. Descriptions and illustrations of various morphological aspects of the species also can be found in Bradley et al. (1979), Kuznetsov (1978), Graaf Bentinck and Diakonoff (1968), Hannemann (1961), Benander (1950), Pierce and Metcalfe (1922), and Kennel (1921).

DIAGNOSTIC FEATURES

Description. *Epinotia abbreviana* is a variable species. The forewing of specimens collected in Newfoundland exhibits the two extremes of variation, which ranges from a pale form with distinct and contrasting markings to a dark form with an almost uniform dark gray-brown forewing and faint markings. Bradley et al. (1979) provided a series of wing illustrations showing the variability of this species in England. The ISCC-NBS (Inter-Society Color Council-National Bureau of Stan-



FIGS. 1-2. Dorsal aspect of *E. abbreviana* adults; 1, form 1; 2, form 2.

dards) Color-Name Charts (Kelly & Judd 1955) are used in the following descriptions.

Head. Vertex, antenna medium brown to dark gray-brown. Frons white. Labial palpus medium brown on apical third, other areas yellow-white to white.

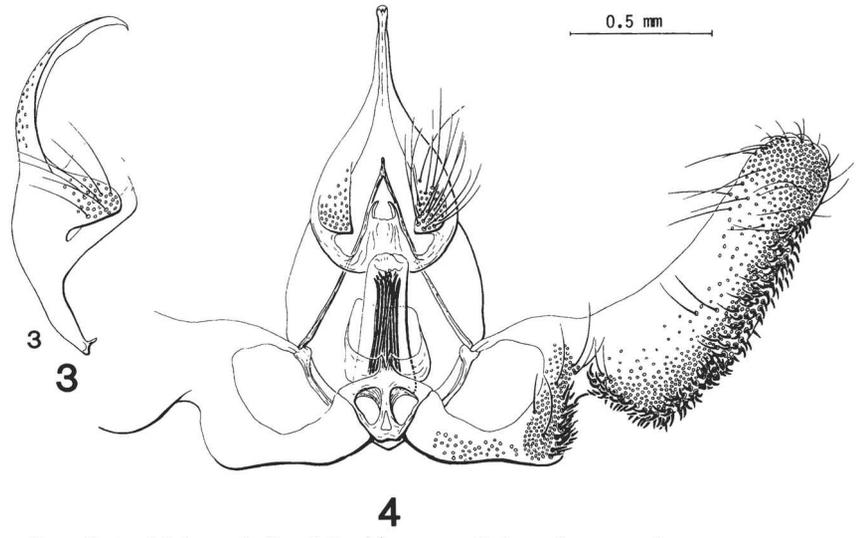
Thorax. Notum yellow-brown to dark gray-brown. Pleural area yellow-white. Forewing 7.0-7.5 mm long, without costal fold. *Form 1* (Fig. 1): Forewing mostly medium brown; area between medial fascia and basal patch yellow-white, extended across wing, shaped like "greater-than" or "less-than" sign; costal strigulae well defined, with alternating yellow-white and medium brown comma-shaped spots; area between postmedial and subterminal fasciae, and that between subterminal and terminal fasciae, narrow, silver-gray, extending from dorsal end of terminal margin to costal margin at two-thirds length from wing base, and from terminal margin at one-fourth length from wing apex to costal margin at three-fourths length from wing base, respectively; tornal area with silver-gray ocellus. *Form 2* (Fig. 2): Forewing medium brown in most areas, fasciae obsolete; as with form 1, tornal ocellus and two oblique lines in areas between postmedial and terminal fasciae silver-gray, but faintly visible; costal strigulae dull, consisting of alternating yellow-brown and medium brown spots. Hindwing uniform gray-brown; fringe paler. *Form 3*: Similar to form 2, except much darker, dark gray-brown. Legs in all forms with fore- and midlegs medium brown, except basal and apical margins of femur, tibia, tarsomeres, and mid area of tibia white; hindleg yellow-white, except tarsomeres medium brown basally.

Abdomen. Medium brown to dark gray-brown dorsally.

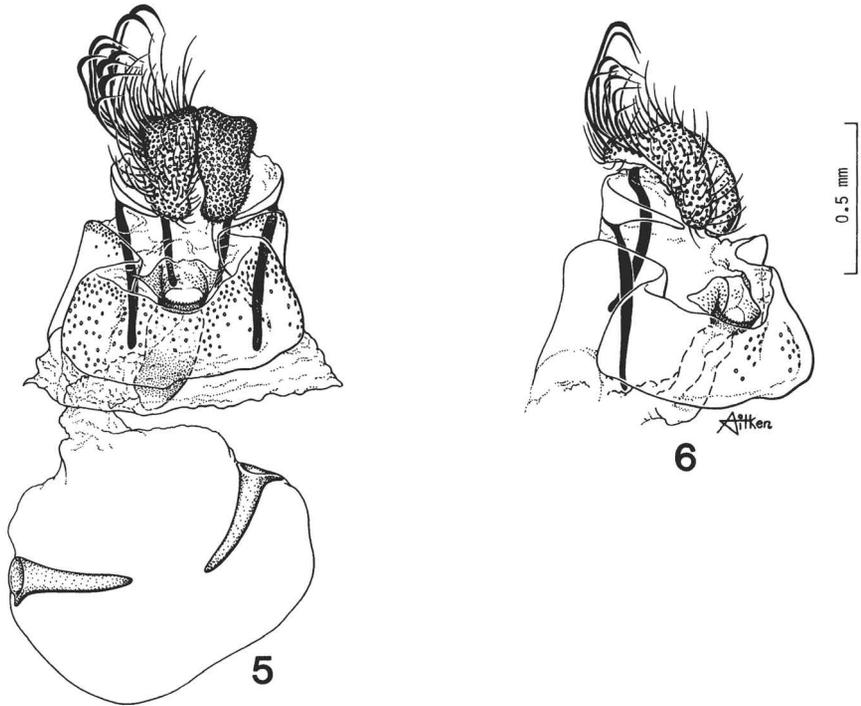
Male genitalia (Figs. 3-4): Mesal surface of valva with numerous, short, stout setae along ventral margin of sacculus, and with slender, dorsally directed setae on remaining areas. Tegumen well developed, triangular. Uncus long and slender, gradually tapered apically, gently curved ventrally, with small, inconspicuous bifid apex. Socius well developed, with dense, posterodorsally directed, long setae; apex, as seen laterally, bluntly convex. Aedeagus cylindrical; cornuti long, well sclerotized, distinctly curved apically, 10-11 in number.

Female genitalia (Figs. 5-6): Papillae anales foot-shaped, distinctly arched anterodorsally, fringed laterally with long, hooked setae. Lamella postvaginalis small, densely spiculate. Colliculum long, cylindrical, slightly sclerotized, smooth, as long as non-sclerotized part of ductus bursae. Corpus bursae voluminous, potato-shaped, slightly wider than long, with 2 well-sclerotized, horn-shaped, anteromedially directed signa, one on each side; surface of corpus bursae finely reticulate.

Remarks. The male genitalia of *Epinotia abbreviana* are similar to those of *E. sperana* McDunnough, *E. myricana* McDunnough, *E. ethnica* Heinrich, *E. ulmicola* Kuznetsov, *E. solandriana* (Linnaeus), and



FIGS. 3-4. Male genitalia of *E. abbreviana*; 3, lateral aspect of tegumen, uncus and socius; 4, posteroventral aspect with both valvae spread.



FIGS. 5-6. Female genitalia of *E. abbreviana*; 5, ventral aspect; 6, lateral aspect.

E. trigonella (Linnaeus); the first three species are native to North America, the third is found in south of the Primorye Territory of Russia, and the last two are widespread in the Holarctic region. Specimens of *E. ulmicola* were not available for study. However, according to Kuznetsov (1966), *E. ulmicola* is distinguished from *E. abbreviana* (sensu *E. trimaculana* Donovan) by the following characters: apex of uncus simple, bifid in *E. abbreviana*; distoventral angle of sacculus obtuse in mesal view, approximately 90° in *E. abbreviana*; and apex of socius pointed in lateral view, bluntly convex in *E. abbreviana*. The females of these two species are indistinguishable. All other species mentioned above have a long, fingerlike uncus with a distinctly bifid apex, and valvae with the ventral margin deeply and broadly emarginate at one-third the length from base (Fig. 4). *Epinotia abbreviana* is distinguished by the following characters: 1) costal fold of forewing absent, present in others; 2) uncus at least as long as aedeagus, shorter in others; and 3) apex of socius bluntly convex in lateral view, pointed in others. The female is characterized by the distinct, dorsoanteriorly arched papillae anales, which are fringed laterally with large, slender, hooked setae; by the lamella postvaginalis with an acute dorsolateral angle on each side; and by a pair of large, horn-shaped signa.

Material studied. CANADA: Newfoundland: St. John's, em. 18, 21.VI.1981, elm, (FIDS), 2 ♂; Bowring Park, St. John's, em. 6-7.VII.1988, *Ulmus rubra*, (FIDS), 2 ♀, all in CNC. ENGLAND: Abingdon, 30.VI.1924, (H. C. Hayward), 1 ♂, in USNM. GERMANY: Nieder-Weser, Bremen-Stadtwald, 5.VII.1941, *Ulmus*, (E. Jackh), 1 ♀, in USNM.

Distribution and biology. *Epinotia abbreviana* is widespread and distributed throughout Europe and Asia Minor. Early larval instars of this species feed inside the developing bud of species of *Ulmus*. A characteristic ring of small perforations appears on the leaf surface when the leaf becomes fully expanded in the spring; Bradley et al. (1979) provided excellent illustrations of leaves of *Ulmus* damaged by the larvae. Later larval instars become leaf tiers. *Epinotia abbreviana* is a potential pest of *Ulmus* species in Canada and the United States.

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