Description of the larva of *Oxelytrum erythrurum* (Blanchard, 1849) (Coleoptera: Silphidae)

A. OLIVA

Laboratorio de Entomologia forense, Museo argentino de Ciencias naturales, Av. A. Gallardo 470, C1405DJR, Buenos Aires, Argentina (e-mail: aoliva@macn.gov.ar).

Abstract

The larva of *Oxelytrum erythrurum* is described and figured. This larva differs from those of described species of Neartic genera in the distribution of setae on the maxillary palptiger, in the shape of the ventral shields on the abdominal segments, in the length ratio between the second and third antennal segment and of the first and second urogomphial segments and in the shape of the lateral processes of the dorsal plates. No larvae of Neotropical Silphidae had been described up to date.

Keywords: Forensic entomology, Neotropical fauna.

Introduction

The small but widespread family Silphidae (Coleoptera: Staphyliniformia) includes many species associated with carrion; hence the English trivial name "carrion beetles". The position of the family in the Order Coleoptera is discussed by NEWTON & THAYER (1992) and by HANSEN (1997). DORSEY (1940) describes and figues the larvae of six Neartic species of *Silpha* (Silphidae: Silphinae). PETERSON (1960) takes up DORSEY’s data for two of the six species but does not, as far as I could ascertain, add any new information. Later authors restricted the name *Silpha* to Old World species, and the six American species treated by DORSEY were assigned to five genera (PECK & ANDERSON, 1985).

Two genera of Silphidae are known to occur in Argentina, *Nicrophorus* (Silphidae Nicrophorinae) and *Oxelytrum* (Silphidae Silphinae). The later alone has relevance in forensic entomology. No larvae of Neotropical species of Silphidae have been described before (PECK & ANDERSON, 1985).

Only *Oxelytrum erythrurum* (Blanchard, 1840) has been found in the province of Buenos Aires (including Buenos Aires city itself) in forensic cases and in field experiments to study cadaveric faunal succession, always in rural or semirural conditions (OLIVA, 2001). Field experiments in the province of Buenos Aires (CENTENO et al., 2002) showed appearance of adults as early as the first two days on dead pigs exposed in a roofed cage and from day 11th onward on pigs in an unroofed cage. The early arriving adults may feed on the carcass, but most certainly they prey on the blowflies that come to lay their eggs, as well as on the eggs themselves and newborn larvae (V. Trigo, unpublished data). The larvae of Neartic Silphidae Silphinae do not attack fly larvae, but feed on cadaveric tissues and on occasion show cannibalism; there is no parental care (DORSEY, 1940). PAYNE & KING (1970) (working with pigs as bait) observed adults of several species feeding on maggots. Larvae of Silphidae appeared after most dipterous larvae had left the remains; however, they did not actually observe them feeding on carrion.

On human bodies, adults have been gathered by officials at the scene 8-12 days after death; adults together with young larvae are found around 12-18 days after death, and the larger larvae 18-30 days after death. There appears to be little doubt that the larvae of *Oxelytrum* are necrophagous. They might feed on corpse exudates rather than on tissues, since they are found under the body, in areas with liquefaction.
of tissues, where the underlying soil shows evidence of percolation of fluids (Oliva, pers. obs.).

Generic characters for Silpha (Dorsey, 1940) may be applied to the whole subfamily Silphinae, as far as present information goes. They include, among others: body campodeiform; head broader than long; mandible with broad base tapering to incisor lobe with two acute teeth; clypeofrontal suture distinct only at lateral marging; clypeolabral suture distinct; labrum bilobed; dorsal ocelli four, arranged round a small rounded mound; ventral ocelli two, on ventral surface of the head; maxillae with mala and stipes fused, galea with rounded brush-like tip; spiracles annular, the mesothoracic spiracle about twice the size of other spiracles; dorsal shields of thoracic segments with U-shaped posterolateral angles, those of abdominal segments with posterior angles acute; legs gradually increasing in length from first to third, spinose; coxa grooved, trochanter small, femur about equal in length to coxa, tibia slightly shorter than femur, tarsungulus long, strong, with two small lateral spines. These characters are based on the six species described by Dorsey (1940), which, as it was said before, belong to five different genera (Peck & Anderson, 1985).

The species treated by Dorsey are:

- Necrophila americana (L., 1759) (sub Silpha americana L.)
- Oicoeptoma rugulosum (Portevin, 1903) (sub Silpha inequalis Fab.)
- O. novboracensis (Forster, 1771) (sub Silpha novboracensis Forst.)
- Heterosilpha ramosa (Say, 1823) (sub Silpha...
NaOH

They were mounted afterwards in a vinyl-based medium for drawing.

than the remaining material. Five specimens the second specimen after treatment with hot rearing has been completed, but larvae of this species certainly surpass 20 mm in length. Cam­podeiform, depressed (fig. 1). General colour light yellowish brown, darker on the more sclerotized plates, with narrow median light stripe along the whole body, excepting the anterior half of the head. Cephalic capsule dark reddish brown. Dry-preserved specimens (not unusual in old collections) take on an uniform dark reddish brown.

Head prognathous, rounded, somewhat broader than long; suture apparent. Antennae 3-segmented, with apical segment subulate, hardly shorter than the precedent one (fig. 5). Mandibles strong, curved, without molar area, incisor lobe ending in two acute teeth; asymmetrical, right mandible without any cutting edge, left mandible with small cutting edge between the two teeth (fig. 6). I did not find any traces of the setae mentioned by DORSEY (1940). Maxillary palpiger small but distinct. Maxillae as described by DORSEY (1940), but with a single seta anterior to base of palpus and two posterior, the first of these inserted at the very base (fig. 7). Maxillary palpi 3-segmented; first segment convex in its anterior outline, second shorter than first, thickened towards apex, third subulate, a little longer than the precedent segment (fig. 7). Labial palpi two-segmented, not extending beyong glossae; second segment minute (fig. 7). Stemmata as described by DORSEY (1940) for the genus Silpha.

Material examined

Argentina: Buenos Aires province: Tandil, 21/XI/2003, under a dead pig set as bait for sarcosaprofagos insects at the Facultad de Ciencias Veterinarias (UNC); in the collection of the Laboratorio de Entomologia forense. Larva found along with an adult of *O. erythrurum*. This specimen has been used for habitus and gross detail drawings, as better fixated and preserved than the remaining material. Five specimens form the general collection of the Museo argentino de Ciencias naturales (MACN), dry-mounted, labelled “Bs. Aires”, “6327”, one of which was used for drawing mouthparts. A series from a forensic case (Buenos Aires: San Isidro 30-IX-2000, PMI estimated 45 days).

The drawings were made with a camera lucida in a Zeiss stereomicroscope. The mouthpieces, cephalic capsule and legs were dissected out of the second specimen after treatment with hot NaOH and rinsing in water with acetic acid. They were mounted afterwards in a vinyl-based medium for drawing.

Description of the larva of *Oxelytron erythrurum* (Blanchard, 1849)

Length of figured specimen 17.5 mm; no rearing has been completed, but larvae of this species certainly surpass 20 mm in length. Cam­podeiform, depressed (fig. 1). General colour light yellowish brown, darker on the more sclerotized plates, with narrow median light stripe along the whole body, excepting the anterior half of the head. Cephalic capsule dark reddish brown. Dry-preserved specimens (not unusual in old collections) take on an uniform dark reddish brown.

Head prognathous, rounded, somewhat broader than long; suture apparent. Antennae 3-segmented, with apical segment subulate, hardly shorter than the precedent one (fig. 5). Mandibles...
mandible without an incisor edge, and by the long, two-segmented urogomphi. From *Oicoeptoma rugulosum* and *O. noveboracensis* by the dorsal shields of the ninth abdominal segment with much larger projections and by the urogomphi much longer than the tenth abdominal segment. From *Necrodes surinamensis* by the antennae with third segment only a little shorter than the second, and by the dorsal shields of the ninth abdominal segment with much larger projections. From *Necrophila americana* by the maxillary stipes bearing one seta anterior to palpus and two posterior, the maxillary palpus with a basal segment convex at its anterior outline (drawings by DORSEY show basal segments slightly concave in front), the labial palpi not extending beyond the labial glossae, the ventral shields of abdominal sternites not produced at the posterior angles, the abdominal spiracles with circular openings and the longer urogomphi. From *Thanatophilus lapponicus* by the right mandible without an incisor edge.

DORSEY (1940) has illustrated sometimes the right, sometimes left mandible; he does not mention any asymmetry of these mouthparts. If the mandibles are symmetrical in the species he treated, then the asymmetry in *Oxelytron* might be a generic character.

Acknowledgements

I thank the Facultad de Ciencias Veterinarias (Universidad del Centro de la Provincia de Buenos Aires) for the use of their grounds and installations to perform field studies of cadaveric faunal succession; Dr Osvaldo R. Di Iorio for procuring a copy of the PECK & ANDERSON paper, and Verónica Trigo for communicating unpublished data.