

***Acroclita subsequana* (Lepidoptera: Tortricidae), new to the Belgian fauna**

Steve Wullaert & Ruben Meert

Abstract. During a survey in “The Doornpanne” in Koksijde (WV) a specimen of a tortricid was collected for further examination because it was not determinable in the field. After studying the genitalia it turned out to be *Acroclita subsequana* (Herrich-Schäffer, 1851), a new species for Belgium. In the following months, many larvae of this species were found at various locations on the west coast. In this article the distribution and the biology are discussed.

Samenvatting. Tijdens een nachtvlinderinventarisatie in “De Doornpanne” te Koksijde (WV) werd één exemplaar ingezameld omdat de vlinder in het veld niet te determineren was. Na studie van het genitaal bleek het te gaan om *Acroclita subsequana* (Herrich-Schäffer, 1851) (zeewolfsmelkbladroller), een nieuwe soort voor België. In de maanden daarna werden op verschillende locaties aan de westkust heel wat rupsen van deze soort gevonden. In dit artikel worden de verspreiding en de biologie besproken.

Résumé. Lors d'un inventaire à “De Doornpanne” à Koksijde (WV), un spécimen a été collecté car il n'était pas identifiable sur le terrain. Après examen des genitalia, il s'est avéré qu'il agissait d'*Acroclita subsequana* (Herrich-Schäffer, 1851), une nouvelle espèce pour la Belgique. Au cours des mois suivants, de nombreuses chenilles de cette espèce ont été trouvées à différents endroits sur la côte occidentale. Dans cet article la répartition et la biologie sont également discutées.

Key words: *Acroclita subsequana* – Faunistics – First record – Belgium.

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Introduction

During a moth survey in “De Doornpanne” at Koksijde/Oostduinkerke (WV) on 30.ix.2018 the Working Group Leafminers of the Flemish Entomological Society found one specimen we could not determine immediately. We retained it, and after examination of the genitalia we found it was the first adult specimen captured in Belgium of *Acroclita subsequana* (Herrich-Schäffer, 1851), det. and gen. prep. SW.: PRE.SW.2275.18.F. KDO.24, leg. SW, CS & WM. During 2018, four visits were made to that particular area and about 3500 specimens from 329 different species were recorded (Wullaert 2019). Among the Lepidoptera, there were many species that require coastal habitats. “De Doornpanne” is an extensive dune landscape of which the central part is owned by the Intercommunal Water Supply Company of Veurne-Ambacht (IWVA) and functions as a water collecting area. Other parts are managed by the Agency for Nature and Forests and most are designated as Flemish Nature Reserves. The area comprises various types of dune, from drift dunes and dune grasslands to densely grown pans and fixed inner dunes. The core of the dune complex consists of a broad depression in which the vegetation forms a mosaic of forest, scrub and open dune vegetation (iwva.be 2019). The capture of that one specimen led to a search of other coastal areas, and in most of them larvae of *A. subsequana* were found on *Euphorbia paralias* (sea spurge), one of its hostplants. On the platform “waarnemingen.be” many observations of this species were reported. All data shown in Table 1 are from the Province of West Flanders and were extracted from waarnemingen.be (2019).

A closer look at these observations revealed that our capture of the moth in “De Doornpanne” was actually not

the first observation of this species in Belgium. On checking their photos of larvae from coastal areas, other entomologists found that some of them were also of this species. The first observation was made in 2016, when the second author found one larva in “Ster Der Zee” at Koksijde on 08.x.2016. Two years later another was seen and photographed in “De Westhoek” at De Panne on 30.vi.2018, leg. SC (waarnemingen.be 2019). With so many subsequent observations of larvae along the Belgian coastline, it is clear that *Acroclita subsequana* is well established along the Belgian coast.

Abbreviations

For Provinces we use the same abbreviations as those used in “The Catalogue of the Lepidoptera of Belgium” (De Prins *et al.* 2019), so WV stands for West Flanders. IWVA: Intercommunale Waterleidingsmaatschappij van Veurne-Ambacht.

Abbreviations for specimens checked for genital structure are presented as follows: PRE.SW.2275.18.F. KDO.24, PRE = Preparation, SW = Steve Wullaert, 2275 = nr of preparation, 18 = year of preparation, F = female, KDO = Koksijde/Doorpanne, 24 = nr of preparation from that area.

Abbreviations for people are presented as follows: BDW = Bart De Witte, CG = Christophe Gruwier, CS = Chris Steeman, DDG = Davy De Groot, DG = Damien Gailly, ET = Eef Thoen, JD = Jurgen Dewolf, MW = Maarten Willems, PVM = Philippe Vanmeirbeek, PV = Pieter Vantieghem, RM = Ruben Meert, RN = Regis Nossent, RR = Ruben Recour, SC = Stéphane Claerebout, SW = Steve Wullaert, WD = Wim Declercq and WM = Wouter Mertens.

Table 1. Observations of *Acroclita subsequana* in West Flanders.Table 1. Waarnemingen van *Acroclita subsequana* in West-Vlaanderen.

Location	Specific area	Date	Life stage	Number	Leg.
Koksijde	Ster Der Zee (Koksijde)	08.x.2016	Caterpillar	1	RM
		07.x.2018	Caterpillar	10	RM
		16.xi.2018	Caterpillar	1	MW
		24.iii.2019	Caterpillar	1	MW
	De Doornpanne (Oostduinkerke)	30.ix.2018	Imago	1	SW, CS, WM
	Schipgatduinen (Oostduinkerke)	28.x.2018	Caterpillar	20	RN, RR
	Omgeving Zeedijk (Oostduinkerke)	19.iv.2019	Caterpillar	5	BDW
Omgeving Gilles Scottlaan (Oostduinkerke)	11.v.2019	Caterpillar	1	WD	
	22.vii.2019	Caterpillar	1	RM	
	05.x.2019	Caterpillar	3	RM	
De Panne	De Westhoek (De Panne)	30.vi.2018	Caterpillar	1	SC
		19.x.2018	Caterpillar	150	CS, SW
		03.xi.2018	Caterpillar	2	PV, WD
		27.xii.2018	Caterpillar	1	RN, RR
		20.ii.2019	Caterpillar	1	RM
		09.iii.2019	Caterpillar	1	WD
	Vissersdorp (De Panne)	20.x.2018	Caterpillar	5	ET, JD, RN, WD
		28.x.2018	Caterpillar	10	CG
		03.xi.2018	Caterpillar	1	PV
	Omgeving sportstrand (De Panne)	21.x.2018	Caterpillar	7	DG
	Telpost Witte Berg (De Panne)	24.viii.2019	Caterpillar	10	PVM
Nieuwpoort	IJzermonding (Nieuwpoort)	21.x.2018	Caterpillar	2	DG
	Strand Groenendijk (Nieuwpoort)	31.vii.2019	Caterpillar	5	DG
		23.xii.2018	Caterpillar	2	WD
Oostende	Duinen Fort Napoleon (Oostende)	27.xii.2018	Caterpillar	1	WD
Middelkerke	Sint-Laureinsduinen (Westende)	15.ix.2019	Imago	3	DDG, ET

Fig. 1. Larva of *Acroclita subsequana* partially boring into stem of host plant – Koksijde (WV) 06.x.2018 © Ruben Meert.Fig. 1. Deels in stengel van de waardplant borende rups van *Acroclita subsequana* – Koksijde (WV) 06.x.2018 © Ruben Meert.

Taxonomy

Tortricidae are among the largest and most diverse groups of Lepidoptera worldwide. To date, 10,387 species in 1,071 genera have been described (van Nieuwerken *et al.* 2011). At present 389 species of Tortricidae have been recorded in Belgium (De Prins *et al.* 2019). Within the genus *Acroclita* Lederer, 1859 about 91 different species occur worldwide (Beccaloni *et al.* 2012), but in Belgium, *A. subsequana* is the only representative (De Prins *et al.* 2019). The four other European *Acroclita* species are restricted to the Canary Islands or Madeira (or both) (Aarvik 2017). Therefore, it seems very unlikely that other species of this genus will ever be found in Belgium.

Life cycle and biology

The eggs are deposited, usually singly, in May – June and again in August – September on leaves of *Euphorbia paralias* or *E. portlandica* (Portland spurge). The larvae feed in June and September – March on the leaves and seeds (Bland 2014). The small leaves are spun closely against the stem of the host plant, creating some sort of a tunnel or gallery in which the larva hides and feeds. The larval feeding on the leaf parenchyma causes a yellowish brown discoloration of the leaves, which is easy to detect (fig. 4). In some cases, some brown or nearly black frass can be found at the outside (fig. 5). Personal observations revealed that in some cases the larva bores partially into the upper part of the soft shoot of the host plant (fig. 1).



Fig. 2. Bred specimen of *Acroclita subsequana* on *Euphorbia paralias* (sea spurge) – Schipgatduinen ~ Oostduinkerke (WV). Larvae were found on 28.x.2018, adults were photographed on 01.xii.2018 © Regis Nossent.

Fig. 2. Uitgekweekt exemplaar van *Acroclita subsequana* op *Euphorbia paralias* (zeewolfsmelk) – Schipgatduinen ~ Oostduinkerke (WV). Rupsen werden gevonden op 28.x.2018, imago's werden gefotografeerd op 01.xii.2018 © Regis Nossent.



Fig. 3. Same specimen as in fig. 2 © Ruben Recour.

Fig. 3. Zelfde exemplaar als in fig. 2 © Ruben Recour.

Euphorbia portlandica, a coastal species, is native to Great Britain, Ireland, the Channel Islands and the Atlantic coasts of France, Spain and Portugal (Clapham et al 1987). As *A. portlandica* does not occur in Belgium, *E. paralias* must be the only host plant here. Larvae of the second generation hibernate on the host plant. Pupation takes place in April – May and July – August, in a cocoon in the larval habitation (Bland 2014). In breeding conditions at room temperature, some larvae, collected in October, pupated in the soil and produced adult moths in December (pers. comm. WD) (fig. 2 & 3). Adult moths are normally on the wing in April – June and July – August, flying from evening onwards. They are attracted to both sugar (Bland 2014) and light.

Field search tips

Because of its dull coloration and rapid flight, it is very difficult to capture or even follow an adult *A. subsequana* during its flight (Bland 2014). Therefore, it seems that searching for larvae is the best way to look for this species. Infested host plants are often recognisable from a distance by the discolouration of the galleries in which larvae are or have been feeding. Sometimes the whole plant looks quite devastated (Fig. 7).



Fig. 4. Typical feeding pattern from *Acroclita subsequana* on *Euphorbia paralias* (sea spurge) – Vissersdorp ~ De Panne (WV) 20.x.2018 © Wim Declercq.

Fig. 4. Typisch vratbeeld van *Acroclita subsequana* op *Euphorbia paralias* (zeewolfsmelk) – Vissersdorp ~ De Panne (WV) 20.x.2018 © Wim Declercq.



Fig. 5. Typical feeding pattern from *Acroclita subsequana* on *Euphorbia paralias* (sea spurge) – Ster Der Zee ~ Koksijde (WV) 07.x.2018 © Ruben Meert.

Fig. 5. Typisch vratbeeld van *Acroclita subsequana* op *Euphorbia paralias* (zeewolfsmelk) – Ster Der Zee ~ Koksijde (WV) 07.x.2018 © Ruben Meert.



Fig. 6. Larva of *Acroclita subsequana* on *Euphorbia paralias* (sea spurge) – Vissersdorp ~ De Panne (WV) 20.x.2018 © Wim Declercq.

Fig. 6. Rups van *Acroclita subsequana* op *Euphorbia paralias* (zeewolfsmelk) – Vissersdorp ~ De Panne (WV) 20.x.2018 © Wim Declercq.



Fig. 7. Infected host plant *Euphorbia paralias* (sea spurge) – Koksijde (WV) 06.x.2018 © Ruben Meert.

Fig. 7. Aangetaste voedselplant *Euphorbia paralias* (zeewolfsmelk) – Koksijde (WV) 06.x.2018 © Ruben Meert.

The polyphagous *Cacoecimorpha pronubana* (Hübner, [1799]) (Lepidoptera: Tortricidae) has also been bred from spun *Euphorbia paralias* leaves in Belgium by the second author, and it is therefore important to have a closer look at any larva found on this plant. Full grown larvae of *A. subsequana* have a light brown head (with a darker brown apicranium). The body is brownish yellow, tinged with light green. The pinacula are blackish. The prothoracic plate is brown, sometimes yellow brown, with some darker shades laterally and posteriorly. The medial sulcus is whitish and clearly visible. The thoracic legs are brown and the anal plate is yellowish brown (fig. 6). Those of *C. pronubana* are more variable, have green thoracic legs

marked with brown and a green anal comb with usually four long and two (outer) prongs (Bland 2014).

Finally, *Lobesia (Lobesiodes) occidentis* Falkovitch, 1970 (Lepidoptera: Tortricidae) is also known to feed in loosely spun terminal leaves and to bore down into the shoot of *E. paralias* and some other *Euphorbia* species. The larvae of this species are dark green, with prothoracic and anal plates and the thoracic legs entirely black. This makes them easily distinguishable from both other species. *L. occidentis* is widely distributed in Europe (Aarvik 2017) and is locally present on the south-east coast of England (Bland 2014). So far, it is unknown in Belgium (De Prins *et al.* 2019).

Distribution

Acroclita subsequana is present in most parts of western and southern Europe: Britain, France, Spain (including the Canary Islands), Portugal (including the Selvagens Islands and Madeira), Italy (including Sardinia and Sicily) and Malta (Aarvik 2017) as well as in some coastal regions of Russia (Bland 2014). At the Belgian coast (WV) caterpillars were found between De Panne en Oostende (waarnemingen.be 2019). However, distribution maps of *Euphorbia paralias* show well established populations along the whole Belgian and Dutch coastline. These populations of suitable host plants should be

monitored closely over the coming years, to see if *A. subsequana* is spreading northwards.

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