

## THE SPHINGIDAE OF BRITISH COLUMBIA

By E. H. Blackmore, F.E.S.

The family *Sphingidae* is very poorly represented in the north-western portion of this continent. In boreal North America there are forty different genera, comprising some 134 species and varietal forms, of which only seven genera and fourteen species are known to occur in British Columbia. Alberta is not much better represented, as only sixteen forms are recorded from that province—just two more than we have. It is interesting to note, however, that eight of the species occur in both provinces. Showing how poorly we are represented here in this family, I may mention that in the State of New Jersey alone fifty different species and forms are recorded. Before taking up the species in detail, perhaps it would be as well to say a few words about the different stages.

**Larvae.** The larvae of this family are quite characteristic. As a rule they are large and rather remarkable in appearance, the body is cylindrical and naked and most of them have a caudal horn situated near the end of the body on the eighth abdominal segment. Sometimes in place of this horn is a polished eye-like spot. The majority of the species are of some shade of green in colour and usually have oblique stripes of a contrasting colour on the sides. The anterior segments are retractile and when at rest these segments are drawn back and the front portion of the body raised in the air. When in this posture they are supposed to represent the Egyptian Sphinx and it is to this resemblance that the typical genus was named *Sphinx*. The larvae feed upon leaves of trees and shrubs and are solitary, that is, they do not feed in colonies, but each one feeds by itself upon its appropriate food plant.

**Pupae.** Most of the species pass the pupal state deep in the ground in simple cells made in the earth; a few species, however, transform on the surface of the ground in imperfect cocoons composed of leaves fastened together with silk.

**Adults.** The majority of the species of this family have very stout, long, conical bodies, with long narrow pointed wings, which, together with their rapid and powerful flight have given them their common name of Hawk-moths. Sometimes they are called Humming-bird Moths on account of their habit of remaining poised over a flower while extracting the nectar, holding themselves in this position by a rapid motion of the wings. This attitude and the whirr of the vibrating wings gives them a strong resemblance to a humming-bird. The tongue as a rule is very long, sometimes longer than the body, and in some species it is nearly six inches in length when uncoiled. The antennae are somewhat peculiar, being fusiform (that is spindle shaped) and prismatic; they are generally stouter in the male and usually hooked at the tip. They are, as a rule, crepuscular in their habits, flying at twilight and hovering over flowers from which they extract the nectar with

their long tongues. They are the most elegant of all the Lepidoptera, the quiet but exquisite shades of olive, tan, brown, black and yellow, with touches here and there of pink and blue, combine to make a most harmonious coloration.

The different species in British Columbia arranged in accordance with Barnes and McDunnough's Check List are as follows:

(1) 668 **Sphinx vancouverensis** Hy. Edw., or as it is commonly called, the Vancouver Sphinx. This species is fairly common on Vancouver Island, although it is not well represented in British Columbia collections. It is greyish brown in colour, with shades of paler grey and a few scattered black lines.

It feeds on snowberry and is on the wing in July. It occurs from Vancouver Island throughout Southern British Columbia to Kaslo and Rossland. Its range extends southward to about San Francisco and eastward to Alberta and Montana.

There is a variety of this species named **albescens** Tepper, which is supposed to fly with it, but I have not seen a specimen of it in any British Columbia collection. It occurs in Alberta, however, and also in Manitoba; it is a smaller insect, with the costa and outer margin of the primaries a very pale grey, as is also the centre of the thorax. In *The Moth Book*, p. 51, Holland speaks of **albescens** as having a very dark thorax; this is an error, as that description applies to **vancouverensis**, although his figure on Plate VI is correct.

(2) 690 **Sphinx perelegans** Hy. Edw., or the Elegant Sphinx. This is a species which has been overlooked in our collections. It is rather rare but may be more common than supposed, as it is very liable to be confused with **vancouverensis**, especially by those collectors who are not aware of a similar species occurring in our fauna. It has a much larger wing expanse and differs in the following particulars: it lacks the distinct narrow black line parallelling the outer margin of the primaries; the black sub-apical streak is disconnected, forming in this species two streaks, one slightly below the other; it has also a small brown discal spot on the primaries, and has a distinct whitish sub-marginal band.

This species was first mentioned by the late Rev. G. W. Taylor in the *Can. Ent. Dec.* 1909. He took five specimens with him to Ottawa and studied them in conjunction with Mr. Arthur Gibson, and after studying the descriptions of **vancouverensis**, **albescens**, **vashti** and **per-elegans**, found that they agreed perfectly with the latter. Of the five specimens taken, four were from Wellington and one from Peachland. The only three specimens I have seen are from the Duncan district, where they were taken by the late Mr. E. M. Skinner some twenty-five years ago. In the *Bull. B. C. Ent. Soc.* Sept. 1906, Mr. Cockle lists **S. drupiferarum** A. & S. from Kaslo, identified from Holland's *Moth Book*, but I rather doubt this record and believe that it refers to **per-**

*elegans*, as both species are closely allied, in fact *perelegans* is closer in maculation and size to *drupiferarum* than it is to *vancouverensis*. The species referred to by Mr. W. H. Brittain in Brit. Col. Ent. Socy. Bull. 4, 1914, as *drupiferarum* is probably *perelegans*.

(3) 705 *Smerinthus jamaicensis* normal form *geminatus* Say. (The Twin-spot Sphinx). This beautifully coloured moth expands about 2½ inches. The forewings are fawn, tipped and banded with brown, the hindwings are carmine in the middle, bordered with pale tan; near the anal angle is a large black spot in which there are two smaller blue spots, which gave rise to the specific name *geminatus*.

This species was originally named and described by Drury in error as coming from the Island of Jamaica. He also was unfortunate in having for his type an aberrant specimen in which the large black spot contained only one blue one. Such specimens occur very occasionally, as also does one in which three blue spots occur in the ocellus and this is named *tripartitus* Grt. The first specimens that I saw of *geminatus* in British Columbia were two or three in the collection of Mr. W. Downes, taken at Armstrong, and which I recorded in Gibson's Ent. Record for 1917, with a note that it was "the only record we have for B. C." Since then, however, I have seen several more specimens taken by Mr. A. L. Meugens at Kelowna. The larva feeds upon a variety of trees, including apple, plum, elm, ash, willow and wild cherry. It is quite common in the Middle Atlantic States.

(4) 706a. *Smerinthus cerisyi* race *opthalmicus* Bdv. The Eyed Hawk Moth. This is without doubt the commonest species of this genus occurring on Vancouver Island; although in Eastern Canada it is comparatively rare. It is on the wing in late April and early May and can be found hanging to electric light cables in almost any street of our coast cities; on one occasion I took 9 specimens off one cable wire. The female lays eggs freely in confinement—large round white ones—like small pearls. The species is easily bred, the larvae feeding on different species of willow. The species is distributed from Vancouver Island to the foothills of the Rockies.

(5) 706a. *S. cerisyi opthalmicus* form *pallidulus* Edw. This is a most beautiful form, as all the umber brown and grey colourings are replaced by shades of pale oliveaceous and light tan. It is rather rare in collections; I only know of five or six specimens being taken. I captured one on June 26th, 1913, and bred another one on July 14th of the same year. Mr. Phair of Lillooet has taken one specimen and Mr. Cockle of Kaslo one or two. It is interesting to note that these very pale forms do not emerge until from one to two months later than the typical forms.

(6) 707 *Paonias excaecata* A. & S. (The Blind Sphinx). This genus differs from the preceding genera in that the head is crested and the apex of the costal margin of the hind wings is produced into a some-

what broad lobe. There are only three species in this genus, two of which occur within the Province. Its range in British Columbia is from Vancouver Island to the Kootenays, and it occurs right across the continent to the New England States, where it is quite common. It feeds upon various plants of the order **Rosaceae** but does not confine itself to these, as it will feed upon willow, poplar and other forest trees.

(7) 708 **Paonias myops** Ab. & Sm. (The Small-eyed Sphinx). This is a smaller species than the preceding and somewhat prettier in ornamentation. The food plants and localities are much the same as **excaecatus** but it is much less common. It is rather rare in British Columbia and has been reported from the Okanagan District and from East Kootenay. I do not think that it occurs on Vancouver Island; so far I have not seen it in any collection on the Island.

(8) 711 **Pachysphinx modesta** R. & J. This species has two popular names, the Modest Sphinx in allusion to the quiet modest tints in which it is clothed, and the Big Poplar Sphinx on account of poplar being its chief food plant, although it will also feed on willow. It is the largest of our local sphingids, measuring from 4 to 5 inches in wing expanse. The body and basal third of the fore wing is pale olive, with the outer third of the wing a darker olive and the middle third darker still with a minute olive discal dot. The hind wings are dull carmine red in the centre with a bluish grey patch near the anal angle. The larva when full grown is about 3 inches long, of a pale green colour and coarsely granulated, the granules studded with fine white points, giving it a frosted appearance. This species is recorded from the Okanagan to the foothills of the Rockies, but is somewhat rare. Outside of the Province it extends to the Atlantic coast and southwards into the northern portion of Mexico; but is not common in any locality.

(9) 732 **Haemorrhagia thysbe** form **cimbiciformis** Steph. (Humming Bird Clearwing). This section of the Sphingidae differs from all others in having the middle of all the wings transparent, that is, free from scales. In many species the abdomen of the male ends in a fan-shaped anal tuft.

In our 1906 "list," **thysbe** is listed from the coast, but I have never been able to trace the specimens that the record refers to. The insect that occurs in British Columbia is the form **cimbiciformis** and it differs from **thysbe** in the outline of the inner margin of the broad outer band of the primaries; in our form the line is even or slightly sinuate, in **thysbe** the line is strongly dentate. It is the rarest Hawk Moth that we have in the Province, I only know of three specimens being taken, although there may be others of which I have no record. The specimen shown was taken in the Bulkley Valley in June, 1914, and the late Wolley Dod records one taken at Field in 1909. Strange to say, it is the commonest species of the genus in Eastern Canada and the New England States. The larva feeds on viburnum, honeysuckle and snow-berry.

(10) 735d. *Haemorrhagia diffinis* race *rubens* Hy. Edw. (The Bumble-bee Hawk Moth). This species is very common in certain localities on Vancouver Island and occurs all through the Province as far as the East Kootenays. It is very difficult to capture on the wing as its flight is exceedingly rapid and when once struck at and missed it is gone for good. The best and easiest way to capture them is to stand perfectly still, before a patch of blossom which they are known to frequent, with ones net ready to strike, and as soon as one comes within striking distance, to make a sweep at it, creating as little disturbance as possible. One afternoon in early May several years ago I captured over 20 in an hour and a half in a small area about 6 yards long by 2 yards in width. It feeds on snowberry and I have bred them from a species of barberry.

It may not be known to all of you that when these moths emerge from their pupal state, their wings are covered with scales, which however are somewhat loosely attached. These scales become detached after the first flight, thus rendering the wings transparent, with the exception of a narrow border round the edges.

In our 1906 Check List we have listed both *thetis* and *palpalis*, the latter is now a synonym of the former. The record is wrong, however, as *rubens* is the form that we get in British Columbia; *thetis* is a much smaller species and occurs in Wyoming and Colorado.

(11) 752 *Prosperinus clarkiae* Bdv. (Clark's Day-sphinx). This is rather a small but pretty species, the fore wings are a pale olive green with an oblique brownish median band and a triangular brownish patch near the apex. The hind wings are orange yellow margined with black. It is not a common species by any means. It emerges about the middle of May and is found hovering over flowers in the bright sunshine. It occurs on Vancouver Island and is recorded from Vernon. I also have one specimen from Trail, but so far Mr. Cockle has not taken it at Kaslo.

(12) 753a. *Prosperinus flavofasciata* race *ulalume* Strecker. This species is rather local but it is not uncommon where it occurs. It is a day-flier and like the preceding species is fond of hovering over flowers. In a certain orchard near Cobble Hill, it is very common round the cherry trees when they are in bloom. It is fairly common in late April and early May in some parts of Vancouver. It is also taken at Kaslo and I have it from Mission and Rossland. The larvae are reported to have been found feeding on fireweed.

(13) 761 *Celerio gallii* race *intermedia* Kirby. (The Bedstraw Hawk-moth). So called as the larvae feed upon the common bedstraw *Galium triflorum*. This is the North American representative of *gallii*, which is very common in Europe.

Dr. Dyar in his Catalogue made *intermedia* a synonym of *gallii*, but Rothschild and Jordan in their Revision of the *Sphingidae* have restored the name of *intermedia*, which is applied to our North American

race. It is very common throughout the Province and it occurs all over Canada and the United States: It is often seen hovering over flowers in the twilight and is attracted by light. I have seen dozens of them flying around the arc-lights in the suburbs of Victoria.

(14) 762 *Celerio lineata* Fab. (The Striped Morning Sphinx). This is supposed to be the commonest sphingid in North America and has probably the most extensive range of any of them. Southern British Columbia is probably its northernmost limit; it extends from coast to coast in the United States and ranges southward through Mexico to Central America. In Colorado they swarm about the electric lights in the streets of the cities, literally in hundreds. It is not so common as the preceding species in this Province, but is found in the same localities. The two species resemble each other in colour and markings, but are easily distinguished by *lineata* having six oblique narrow white lines crossing each of the forewings; the thorax is white striped. The larvae of this species show great diversity in markings and are the most variable of all sphingid larvae. It is almost omnivorous—feeding on a great variety of dissimilar plants, including apple, plum, currant, gooseberry, turnip and chickweed. It is closely allied to the Striped Hawk Moth of the Old World (*Celerio livornica*), which has only four white longitudinal stripes on the thorax instead of six as in our species.

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### EARLY STAGES OF NEPYTIA PHANTASMARIA STRECKER (LEPIDOPTERA)

By Geo. O. Day

A female of this species captured flying at Quamichan, Vancouver Island, on 3rd Sept., 1915, and confined in a chip box, laid 69 eggs in small batches of from two to ten each, the ova securely attached by their sides. Colour a dull light green of a yellowish tinge. Shape bluntly oval—upper and lower sides very slightly flattened—looked at under hand lens no surface markings were visible. Micropylar end of egg rather flat with a central dot. After ten days or a fortnight the colour changed to a purplish gray as if the larva enclosed was in process of formation, but the eggs continued in this condition without hatching. On 17th October I cut one of the eggs open and found it filled with a yellowish green fluid without any sign of larval development. No larvae appeared until the following May, when on the 7th of that month I found two on the lid of the box, evidently just hatched out, and the remainder followed in the course of a few days. Length 3 m.m. Head and claspers wider than the rest of the body; head black. Skin behind the head seemed to fold over it. This fold, and the anal claspers, lighter in colour than the rest of the body, being a watery green. Two