McLellan I. 2005. The Larva of *Spaniocercoides hudsoni* Kimmins (Plecoptera: Notonemouridae) from New Zealand. *Illiesia,* 1(7):43-46. Available online: http://www2.pms-lj.si/illiesia/Illiesia01-07.pdf

THE LARVA OF *SPANIOCERCOIDES HUDSONI* KIMMINS (PLECOPTERA: NOTONEMOURIDAE) FROM NEW ZEALAND

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ABSTRACT
The larva of *Spaniocercoides hudsoni* is described for the first time, notes are given on habitat and distribution of the species is shown.

Keywords: Plecoptera; Notonemouridae; Spaniocercoides hudsoni larva; description; distribution; New Zealand.

INTRODUCTION

The adults of *S. hudsoni* were described and the species chosen as the type species of *Spaniocercoides* by Kimmins 1938.

However the larva of the species eluded collectors until 2000 when Ian Henderson found it while searching in the substrate of a sphagnum bog. This is not an unusual habitat for some members of this genus for *S. cowleyi* larvae live in the underwater gravels of streams and *S. foxi* lives in the substrate of alpine bogs and streams.

Conventions. In material examined the entries are usually shown in the following order: stages with number of each i.e. 2m, 2f, 2n, is 2 males, 2 females, 2 nymphs or larvae; the area code (Crosby 1998) i.e. NZWN is New Zealand, Wellington Province: the locality; its metric coordinates i.e. 26662 59974; the altitude in metres i.e. 120m; the date as follows— 12 Oct 1923; collectors name(s); notes; repository initials in parenthesis.

***Spaniocercoides hudsoni* Kimmins** (Figs. 1-2)
Spaniocercoides hudsoni Kimmins, 1938: 577-579, fig. 13-15 (in part *S. howesi)*; McLellan, 1984: 167-178 (description of male and female); McLellan, 1991: 1-64 (redescription of male and female).

Material examined. Holotype male, NZWN, Korokoro, 26662 59974, below 120m, 12 Oct 1923, G. V. Hudson (BMNH); Paratype female, NZWN, Upper Hutt, 26823 60068, ca. 120m, 1 Dec 1925, G. V. Hudson (BMNH);1f, NZBP, Green Lake, Rotorua, 28051 63146, 400m, 10 Nov 1919, R. J. Tillyard (NZAC); 1m, 1f, NN, Lake Rotoiti, 24948 59263, 620m, 29 Oct 1964, E. S. Gourlay (NZAC); 1f, from the jaws of *Austrolestes colensonis,* NZWA, Lake Pounui, 26865 59825, 100m, S Lake Wairarapa, 28 Oct 1979, W. J. Winstanley; 14m, 30f, NZSD, Maud Island, 25850 60920, 120- 140m, 3—6 Dec 1979, G. W. Gibbs; 1f, NZWN, trib of Sheridan Ck., 26986 60307, 200-600m, 9 Dec 1982, I. M. Henderson, W. J. Winstanley; 3m, 1f, NZWA, Lake Pounui, 26865 59825, 100m, South Lake Wairarapa, 29 Sept 1982, W. J. Winstanley; 1f, NZWN, Sheridan Ck., 26973 60324, 180m, 9 Dec 1982, I. M. Henderson; 1f, NZWN, Otaki Forks, seepage opp. Forest Park gates, 26816 60262, 120m, Dec 1983, W. J.Winstanley swept from streamside vegetation; 2m, 2f, NZWN, North Tararuas, Dundas Basin, 27185 60516, 1100m, 26 Nov 1984, G. W. Gibbs (NZAC); 2m, NZWN, N Tararuas, near Ruamahanga Forks, 27222 60500, 750m, 29 Nov 1984, G. W. Gibbs (NZAC); 3m, 1f, NZWN, Akatarawa Hill, stms nr summit, 26875 60264, 460m, 8 Dec 1993, I. M. Henderson; 5m, 8f, Waiotauru NZTK, 26964 60327, 140m, 29 Nov 1997, swept, I. M. Henderson; 7m, 3f, NZWN, Waiotauru R. trib, 26960 60318, 220m, 13 Dec 1997, UV, I. M. Henderson; 2m, 1f, NZWN, Waiotauru R. trib, 26960 60318, 220m, 14 Dec 1997, swept, I. M. Henderson; 1m, 1f, NZWN,

Waiotauru R. trib, 26960 60318, 140m, 2 Feb 1998, swept, I. M. Henderson; 1f, NZWN, Waiotauru V on stm on track, 26970 60337, 140m, 14 Feb 1998, I. M. Henderson; 1m, 2f, NZWN, Waiotauru, Tk, 26964 60327, 140 m, 6 Oct 1998, swept, I. M. Henderson; 4m, 2f, NZWN, Waiotauru R. trib, 26960 60318, 220m, 6 Oct 1998, swept, I. M. Henderson; 1f, NZMB, Pelorus River, small tributaries, O27 25576 59893, 40m, 18 Dec 2000, J. B. & G. M. Ward; 6n, NZWN, Waiotauru Valley, road end, 26969 60337, 150m, 5 Nov 2000 and most probably Waiotauru River trib, 26960 60318, 220m, 5 Nov 2000, I. M. Henderson; 3n, NZWN, Waiotauru Valley, road end, sphagnum bog, 26969 60337, 150m, 20 Nov 2000, reared until 22 Nov 2000, I. M. Henderson.

Larva (last instar). Body length 5-6 mm; antenna 2.25 mm; cercus 2 mm. A slender animal. In life, body is light brown (head thorax and abdomen all similar colour) but the legs are a light grass green. Head with frons uniformly light brown and ocelli distinct and dark brown. Pronotum sub-rectangular with indistinct medial pattern and edging a darker brown and usually with 1 long hair anteriorly on each lateral margin and sometimes 3-4 shorter ones. Wingpads extend parallel to the longitudinal axis of body. Legs clothed with spines; hind tarsus length of segment 1/length of tarsus = 0.227. Abdomen clothed with spines, more densely so on the last five segments; the hind margin of tergite 10 with a dense row of longer spines which could be mistaken for an anal gill. Cercus with a ring of hairs around each segment distally apart from the last segment; each hair about 1.5X the width of segment.

Remarks. The identity of the larvae was verified from male and female genitalia clearly visible through the integument of larvae reared from the sphagnum bog.

The dense row of longer spines on the hind margin of tergite 10 could be mistaken for an anal gill. Using the character of presence or absence of anal gills in keys to Plecoptera can be confusing unless supported by presence or absence of tibial spurs.

Habitat and rearing of larvae. Some of the larvae were found in the substrate of a sphagnum bog containing patches of raupo (*Typha orientalis*), sedges, manuka (*Leptospermum scoparium*) and ferns. The larvae were found by scooping plants and mud from the more open areas of water (some flowing, but some still) and washing this through sieves.

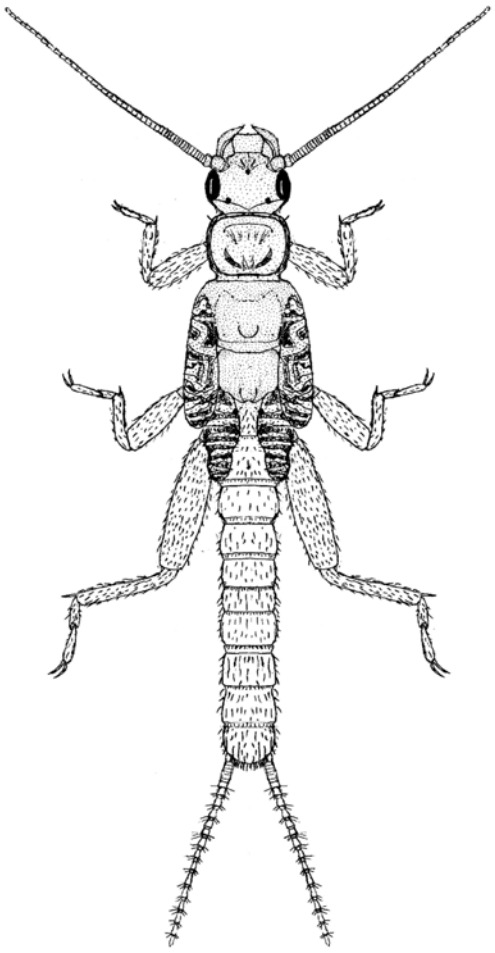

Fig.1. *Spaniocercoides hudsoni*: larval habitus.

This habitat is very different from the habitat where most adults were caught. This is a small, very stable stream, under thick forest canopy, stony with liverworts but with extensive areas of seepage. Three Spaniocercoides hudsoni larvae from the sphagnum bog were reared in moss, algae and macrophytes until the wingpads had darkened and the genitalia was visible through the integument. This happened very quickly. One morning the wing pads were small and unpigmented, but by the next morning two had very dark wingpads and the genitalia were visible. Faecal material in the jar shows the stoneflies fed on something although no

active feeding was seen. They appear not to be predators as all the caddis larvae with them survived.

Distribution (Figure 2). This species appears to be a lowland species living mainly in bush-clad streams up to about 1100m. South Island distribution is restricted to Marlborough Sounds (NZSD) and the Nelson Lakes (NZNN/BR). North Island however has not been as well covered by collectors, apart from some alpine areas, so it is possible that *S. hudsoni* extends further north than the Green Lake, Rotorua (NZBP) record.

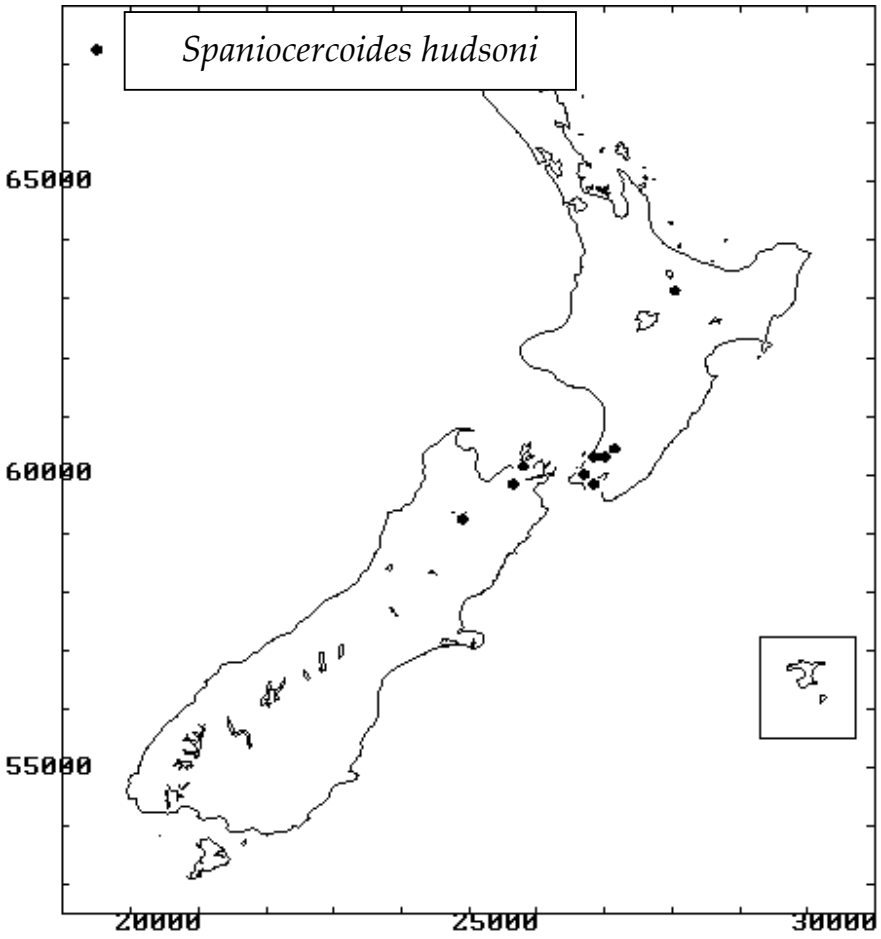

Fig 2. *Spaniocercoides hudsoni*: distribution map.

Key to larvae of *Spaniocercoides* species

1. Frons uniformly brown ……..2
Frons with pale patches……...3

2. Ocelli distinct……..……5
Ocelli indistinct……*watti*

3. Cercal base about half as wide as labrum; lateral ocelli larger than anterior ocellus……*cowleyi*
Cercal base 0.3x as wide as labrum; lateral ocelli not larger than anterior ocellus……...4

4. Frons with a pale patch bounded by epicranial sutures and ocelli……..….*foxi*
Mask-like patch extends width of head between epicranial sutures and anterior ocellus ……..……..*howesi*

5. Pronotum with row of short hairs (each about 0.04 mm long) along its sides*; hind tarsus length of segment 1/length of tarsus = 0.375 …….....…….....*philpotti*
Pronotum with one long hair (0.025 mm long) anteriorly and sometimes 3-4 shorter hairs on its sides; hind tarsus length of segment 1/length of tarsus = 0.227…….....*hudsoni*

* For comparison a *Spaniocerca zelandica* larva measured had a dense fringe of hairs ranging from 0.08-0.12 mm. Its fringe can be clearly seen at X16. The hairs on *Spaniocercoides* species are just visible at X40.

ACKNOWLEDGEMENTS

I am much indebted to Ian Henderson (Massey University) for collecting and rearing the larva of *S. hudsoni* and his notes on these activities.

REFERENCES

Crosby, T. K., Dugdale, J. S., Watt, J. C. 1998. Area codes for recording specimen localities in the New Zealand subregion. New Zealand Journal of Zoology 25:175-183.

Kimmins, D. E. 1938. Notes on Plecoptera of New Zealand. Annals and magazine of natural history, London, series 11, 2(12): 561-580.

McLellan, I. D. 1984. A revision of *Spaniocercoides* (Plecoptera: Notonemouridae) and descriptions of new species. New Zealand Journal of Zoology 11: 167-178.

McLellan, I. D. 1991. Notonemouridae (Insecta: Plecoptera). Fauna of New Zealand 22: 1-62.

Received 1June 2005, Accepted 12 September 2005, Published 17 November 2005

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Autor(en)/Author(s): McLellan Ian

Artikel/Article: The larva of Spaniocercoides hudsoni Kimmins (Plecoptera: Notonemouridae) from New Zealand. 43-46