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***Ablabesmyia reissi*, spec. nov.,  
a new species of Tanypodinae from Rio Negro province, Argentina,  
with descriptions of the adult female and preimaginal stages**

(Insecta, Diptera, Chironomidae)

**Analía C. Paggi & Diego Añón Suarez**

Paggi, A. C. & D. A. Suarez (2000): *Ablabesmyia reissi*, spec. nov., a new species of Tanypodinae from Rio Negro province, Argentina, with descriptions of the adult female and preimaginal stages (Insecta, Diptera, Chironomidae). – In: Baehr, M. & M. Spies (eds): Contributions to chironomid research in memory of Dr. Friedrich Reiss. – Spixiana 23/3: 259–266.

A description is offered for the adult male, female and preimaginal stages of *Ablabesmyia reissi*, spec. nov. The species' subgeneric position is discussed and the new *reissi* species group created. Ecological features and the habitat at the type locality are described.

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### Introduction

Larvae belonging to the genus *Ablabesmyia* Johannsen, 1905 were collected as part of benthic studies (Añón Suarez 1997) carried out in Lago Escondido near San Carlos de Bariloche, Rio Negro province, Argentina (41°2'S, 71°4'W). Larva-pupa-adult associations were obtained from laboratory rearings, additional adult specimens were collected near the lake with a light trap. While checking other collection material, a complete rearing was found in a sample from Ramos Mexía reservoir, Neuquén and Río Negro provinces (39°15'-39°40'S, 68°40'-69°29'W). A congeneric species, *A. (Karelia) bianulata* Paggi, 1988, is known to also occur in our study area.

In the present paper, the immature and adult stages of a new species are described from the above material, and its position in the genus is discussed.

### Methods

Part of the material was cleared with 10% KOH and slide-mounted in Canada balsam; the rest was mounted in Euparal. Terminology and abbreviations follow Sæther (1980) and Roback (1985). Tables are arranged as in Roback (1985) to make comparisons easier. Total specimen length and wing length are given in mm, other linear measurements in  $\mu\text{m}$ , with the values presented as means followed by ranges in parentheses.

*Ablabesmyia reissi*, spec. nov.

Figs 1-17

**Types.** Holotype: 1 reared ♂, ARGENTINA, Rio Negro province, 30 km W. of San Carlos de Bariloche, Lago Escondido, 6.I.1998, leg. D. Añón Suarez; on slide in Euparal, deposited at Museum of Natural Science of La Plata, La Plata, Argentina. – Paratypes (all ARGENTINA; at Inst. of Limnology, La Plata). From type locality, leg. D. Añón Suarez: 5♂♂, 3.XII.1988; 1 larva, 2.XI.1988; 1 larval exuvia + pupa, 2 pupal exuviae; 1♂, 19.XI.1992; 1 reared ♀, 2 reared ♂♂, 1 larval exuvia + 1 pupal exuvia, 6.I.1998; Neuquén, Embalse Ramos Mexia, leg. F. Kaisin: 1 reared ♂, 5.XI.1983.

**Etymology.** The new species is named in memory of Friedrich Reiss, and to acknowledge his important contributions to the chironomids of Patagonia.

**Diagnosis.** Adult males of *A. reissi*, spec. nov. can be identified by their color pattern (see description of wing spots, leg bands, abdomen) in combination with the expanded subterminal megaseta of the gonostylus, the slightly sinuate or apically curved superior volsella, and the small median volsella with setae on its base.

A diagnosis for the adult female cannot be given here, since too few other species of *Ablabesmyia* are known in detail in this life stage.

The pupa of *A. reissi* is distinguished by the slightly dome-shaped frontal apotome, oval thoracic horn with distinct reticulate pattern, curved aeropyle and globose apex, and by the pigmentation of wing sheath and abdominal tergite IV.

The larva is characterised by the dark brownish ligula with concave tooth apices and the inner teeth slightly outcurved, the two-segmented maxillary palp (P1/P2 around 1.09) separated from the palpiger by a membranous portion, and the posterior parapod with one hooked and two dark brownish claws.

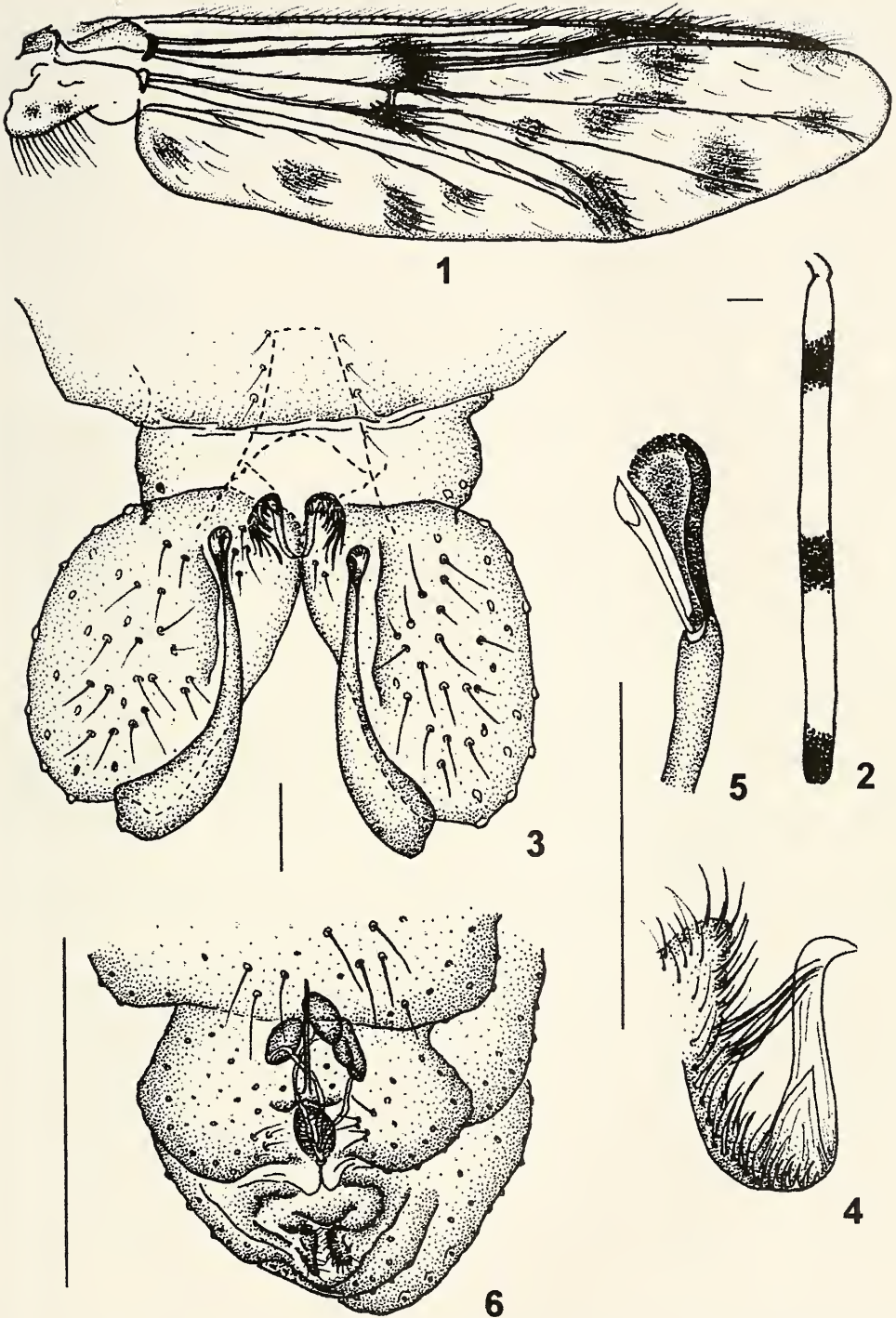
**Description**

**Adult male** (also see Table 1).

Coloration (in alcohol). Greyish with extensive greyish brown markings in a defined pattern, as follows: head brownish, maxillary palps greyish, antennal pedicel and last flagellomere brownish; thorax brownish, vittae, postnotum, preepisternum and two pleural spots dark brownish, scutellum light brownish with two dark brownish longitudinal bands; wing whitish with yellow veins and dark spots as in Fig. 1; coxae brownish, other leg segments greyish with dark bands: femur with one band located in distal 1/3, tibia with three bands (Fig. 2), on fore ti distributed (after Roback 1971: text fig. 3)

**Tab. 1.** Meristic data for adults of *Ablabesmyia reissi*, spec. nov.

	Male			Female (n=1)
	range	mean	n	
Total length	3.85-4.05	4.01	6	3.65
Wing length	2.28-2.72	2.45	9	2.08
Total/wing le.	1.49-1.80	1.66	7	1.75
AR	1.53-2.3	1.73	9	0.28
Tentorium le.	174-238	204	9	163
Palpom.1 le.	91-143	112	8	102
Pm2	143-180	163	8	142
Pm3	159-180	170	8	152
Pm4	190-301	261	8	254
VR	0.73-0.8	0.77	9	0.78
LR <sub>1</sub>	0.76-0.83	0.79	7	0.75
LR <sub>2</sub>	0.65-0.72	0.68	7	0.64
LR <sub>3</sub>	0.79-0.83	0.81	7	0.83
Gonocoxite le.	147-206	196	9	–
Gonostylus le.	147-182	161	9	–
HR	1-1.19	1.08	9	–
HV	2.22-2.89	2.53	7	–



Figs 1-6. *Ablabesmyia reissi*, spec. nov.; adults (1-5: male). 1. Wing. 2. Fore tibia. 3. Hypopygium, dorsal. 4. Superior and median volsellae. 5. Gonostylus apex. 6. Female genitalia, ventral. Scales ( $\mu\text{m}$ ): 100 (Figs 2, 6), 50 (3-5).

as A/B 0.48 and LMB/LBCB 0.31,  $ta_1$  with median band and distal  $\frac{1}{3}$  dark brownish,  $ta_{2,3}$  distal  $\frac{1}{3}$  dark brownish,  $ta_{4,5}$  entirely dark except hind  $ta_4$  which is as  $ta_{2,3}$ ; abdominal tergites II-V with anterior  $\frac{2}{3}$  of each T dark, T VI-VIII entirely dark brownish, TIX brownish, gonocoxite distally and gonostylus proximally with dark bands, megaseta dark brownish.

Head (n=3). Temporal setae 36 (32-41), clypeals 36 (35-38).

Thorax (n=3). Anteprenotals 17 (15-23), acrostichals about 30-34, dorsocentrals and humerals 31 (30-33), prescutellar dorsocentrals 10, uniserial; prealars 25 (22-29) (n=4), scutellars 26-30 in a posterior row and 26-30 scattered more anteriorly.

Wing (n=3). Squamals 38 (37-40), membrane with dense macrotrichia especially over the dark spots (Fig. 1).

Legs (n=5). Tibial spur lengths:  $p_1$  52 (48-55);  $p_2$  53 (48-58) and 40 (35-45);  $p_3$  61 (58-65) and 44 (38-50).

Abdomen. All tergites with abundant setae irregularly distributed.

Hypopygium (Figs 3-5). Lengths (n=5): superior volsella 31 (25-35), median volsella 12 (10-13), megaseta 27 (23-30).

**Adult female** (n=1; also see Table 1).

Coloration. Similar to male except abdominal tergites II-VII each with a dark band across middle, and T VIII-IX all brownish; sternites II-VII each with lateral dark bands, VII, IX, X all brownish, cerci light greyish.

Head. Temporals 32-33; clypeals 37.

Thorax. Anteprenotals 25, acrostichals about 35, dorsocentrals 35, prescutellars 24, prealars 30, scutellars 54 distributed half in a posterior row, half scattered anteriorly.

Wing. Squamals 45, membrane macrotrichia and color pattern as in male.

Legs. Tibial spur lengths:  $p_1$  50,  $p_2$  48 and 35,  $p_3$  50 and 38.

Abdomen. Tergites as in male.

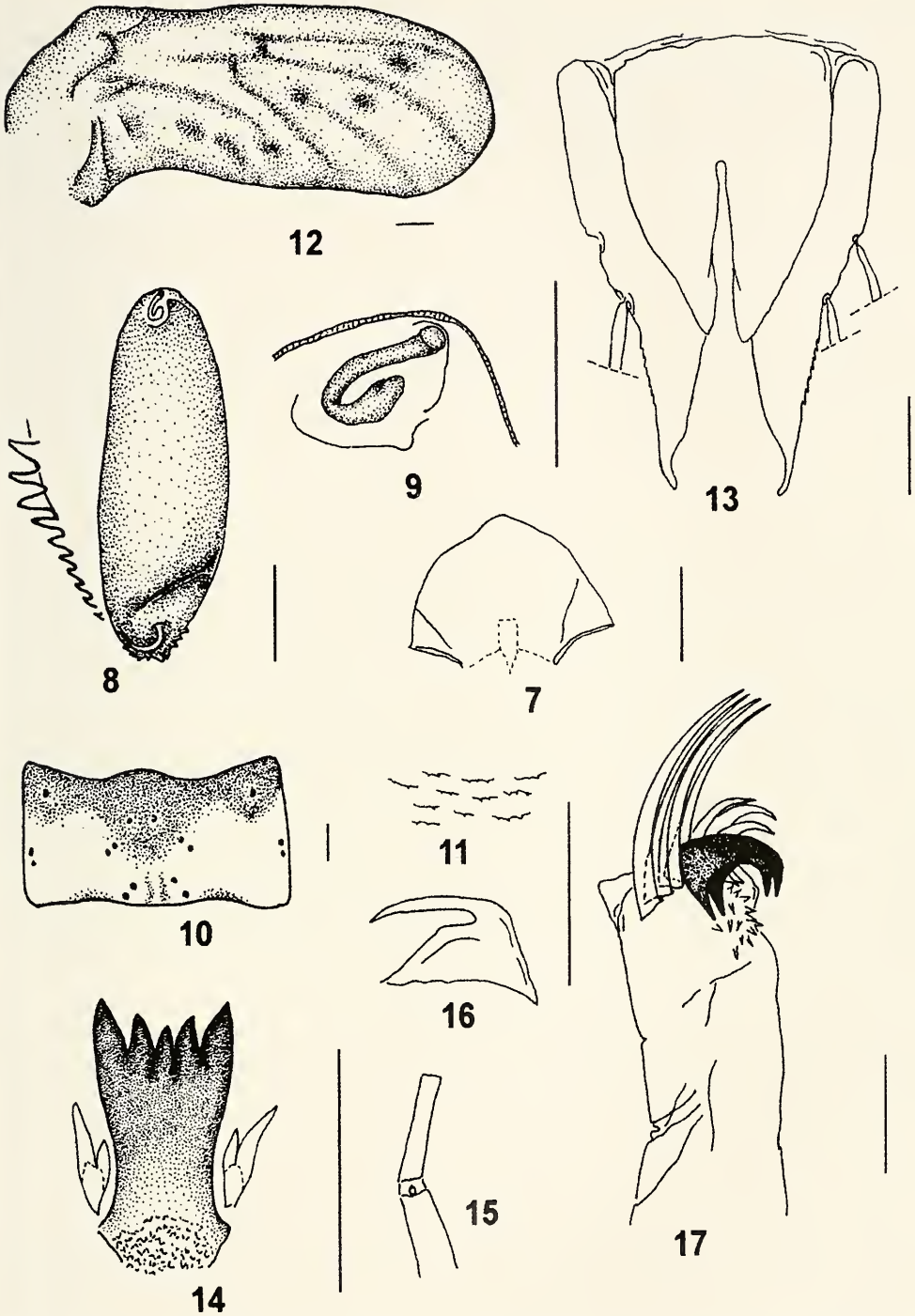
Genitalia (Fig. 6). Notum length 128, cercus 28, seminal capsule length 60, width 40.

**Pupa** (also see Table 2).

Coloration mostly brownish. Frontal apotome (Fig. 7) slightly dome-shaped. Thoracic horn (Figs 8, 9) oval, yellowish brown, with distinct reticulate pattern, aeropyle tube curved, apex globose. Thoracic comb (Fig. 8) of 8-9 blunt spines in a single row. Abdominal T IV (Fig. 10) with anterior, transverse brownish band in characteristic pattern; shagreen denticles as in Fig. 11. Wing sheath with distinct vein traces, vein M complete, spot pattern as in Fig. 12. Postero-lateral margin of anal lobe (Fig. 13) with 8-10 very small, sharp spines.

**Tab. 2.** Meristic data for immatures of *Ablabesmyia reissi*, spec. nov. Character abbreviations after Roback 1985 where applicable.

	Pupae			Larvae			
	range	mean	n	range	mean	n	
Thor. horn length	295-447	389	8	$A_1$ length	366-397	380	8
Thor. horn width	81-163	137	8	Pos. CS	0.55-0.59	0.57	8
ANi length	7.5-20	13	5	( $A_{2,4}$ ) length	94.5-102	97.5	3
ANi / thor. horn	0.018-0.045	0.033	5	AR	3.69-4.08	3.9	3
Pos. $LS_1$ VII	0.32-0.41	0.35	9	MD length	146-164	154	8
Pos. $LS_1$ VIII	0.22-0.35	0.29	9	$A_1$ /MD	2.35-2.59	2.47	8
Anal lobe le.	376-498	439	9	Li length	81-98.5	90	8
pos. $LS_1$ AL	0.39-0.46	0.43	9	It/O	0.86-0.94	0.91	8
GS/AL male	0.65-0.78	0.73	6	Mt/O	0.79-0.88	0.85	8
GS/AL female	0.32-0.35	0.33	3	Pl length	38-58	50	8
				$P_1$ length	40.4-48	44	8
				$P_2$ length	38-45	40	8
				$P_1/P_2$	1-1.26	1.09	8
				Pc length	88-109	95	8
				Pc le./wi.	2.7-3.9	3.42	8



Figs 7-17. *Ablabesmyia reissi*, spec. nov.; immatures (7-13: pupa, 14-17: larva). 7. Frontal apotome. 8. Thoracic horn and comb. 9. Aeropyle tube. 10. Abdominal tergite IV. 11. Shagreen denticles on T IV. 12. Wing sheath. 13. Anal lobe. 14. Ligula and paraligula. 15. Maxillary palp. 16. Hooked claw of posterior parapod. 17. Posterior parapod. Scales ( $\mu\text{m}$ ): 100 (Figs 7, 8, 10, 13-15, 17), 50 (9, 11, 16).

**Larva** (also see Table 2).

Total length (n=10) 4.68 (3.31-5.56) mm. Head capsule light brownish, length (n=10) 832 (792-874), IC 0.74. Ligula (Fig. 14) dark brownish, apices of teeth concave, inner teeth slightly outcurved; paraligula bifid, light brownish. Pecten hypopharyngis of 15-18 teeth, some of them longer. Maxillary palp (Fig. 15) two-segmented, basal segment slightly shorter, separate from palpiger by a difficult-to-see, membranous portion. Body segments light yellowish. Posterior parapod claws include one hooked (Fig. 16) and two dark brownish ones (Fig. 17). Procercus with 7 coarse anal setae. Anal tubules conical; supranal setae simple.

**Discussion**

In the key to North American adult males of *Ablabesmyia* by Roback (1971), *A. reissi*, spec. nov. runs to *A. monilis* (L.) if one considers the superior volsella (aedeagal blade) as sinuate, but discounts the median volsella (basal lobe) which is very small and clear in our species and not strongly sclerotized. *A. reissi* also resembles *monilis* in the coloration of abdominal tergites II-V. The alternative after Roback is to regard the superior volsella as simply curved or slightly sinuate, and the inferior volsella as not evident or membranous. With the given abdominal color pattern the key leads to *A. mallochi* (Walley), but that species differs in structures of the aedeagus, gonocoxite, and gonostylus (megaseta), and has larger tibial spurs and LR.

When comparing larval structures using Roback (1985), *A. monilis* and *mallochi* strongly differ from *A. reissi* in the number of maxillary palpomeres, as well as in the meristic characters of Tab. 2. Their pupae (Roback 1985) differ principally in color patterns of abdominal tergite IV and the wing sheath.

If the larval maxillary palp of *A. reissi* is interpreted as not more than two-segmented, the species falls into the subgenus *A. (Karelia)* Roback. In Roback's (1985) key, our species runs to couplet 5 (considering the ligula inner tooth moderately outcurved). However, it differs from *A. illinoensis* (Malloch), *A. pulchripennis* (Lundbeck), *A. ideii* (Walley) and *A. cinctipes* (Johannsen) – the latter after Caldwell (1993) – by a different combination of  $A_1$  length, a lower P1/P2, an AR around 3.9, A1/MD around 2.47, and in posterior parapod claw configuration. The pupa of our species is near *A. cinctipes*, but differs by the dome-shaped frontal apotome, thoracic horn without constricted lower portion, club-shaped aeropyle tube, tergite IV not uniformly colored, and wing sheaths with vein M complete.

*A. punctulata* (Philippi) sensu Edwards (1931) differs from our specimens in having two additional spots in cell  $r_{4+5r}$  and a larger distance between crossveins MCu and RM. One male in the Edwards material at BMNH – from Nahuel Huapi lake (Argentina); kindly examined for us by Dra M. Riera-devall – shows a front tibia with three mesal and two apical dark bands, thus differing from *A. reissi*, spec. nov. and even from Edwards' own description (one mesal, one apical and one subapical band). With Philippi's type material apparently lost, *Chironomus punctulatus* Philippi is a nomen dubium that should be taken out of use at least until Edwards' entire series under that name is reexamined. For additional species names in this context see Spies & Reiss (1996).

*A. infumata* (Edwards) – reported from Peulla (Chile) and Lago Correntoso (Argentina) – is close to *A. punctulata*, *A. monilis* (Edwards, op. cit.) and our species. However, *A. infumata* is much darker than the other species (abdominal tergites all dark) and has two dark bands on the front femur; small and fainter wing spots and tips of the branches of vein R not distinctly darker, and a slender subterminal gonostylus megaseta.

*Ablabesmyia (Sartaia) metica* Roback – described from Colombia – possesses a lower adult male AR than our species, its wing vein C ends just above the tip of  $M_{3+4}$  (*A. reissi*: C ends beyond  $M_{3+4}$ , closer to tip of  $M_{1+2}$ ), and its hypopygium is lacking the superior volsella (present in our species).

The larvae and pupae of *A. punctulata*, *infumata*, and *metica* have not been described.

A problem arises when trying to determine the subgeneric status of *A. reissi*, spec. nov. Based on the expanded subterminal megaseta of the gonostylus, according to Murray & Fittkau (1989) the species would fall into the subgenus *A. (Ablabesmyia)*. On the other hand, following Roback (1985) the two visible segments of the larval maxillary palp would lead to the subgenus *A. (Karelia)*. However, that author described immature material from Peru, Colombia and Mexico which, for the time being, he could not include into existing subgenera due to its peculiar characteristics. Despite this, he made a tentative categorization. The features of our larvae matching those given by Roback (1985) are a more

advanced position of the campaniform sensillum (CS in Tab. 2) of antennal segment 1 ( $A_1$ ), and the assumed presence of a third, membranous palpomere in the elongated base of the maxillary palp. After Roback (1985: fig. 42B, C) this configuration could be considered intermediate between that of the subgenera (*Karelia*) and (*Asaia*) and that of the *ramphe* and *monilis* groups of *A. (Ablabesmyia)*. Comparing our specimens with the data in Roback's table 18 (1985: 207), a great similarity with the subgenerally unassigned *Ablabesmyia* sp. 1 (= part of *Pentaneura* sp. 6 Roback, 1966) can be observed in the above mentioned features, especially with the specimens reported from Peru. However, in contrast to *A. sp. 1*, our larvae possess a hooked claw on the posterior parapod.

With regard to the pupae Roback associated with *A. sp.1* (but did not illustrate), our specimens fit his description, especially in the shape of the aeropyle (slightly winding and with a club-shaped apex). As a result, this would include them into the subgenus (*Ablabesmyia*), except for the distinctly reticulate respiratory organ on our pupae.

Summarising the above evidence, *Ablabesmyia reissi*, spec. nov. can be tentatively included in the nominal subgenus of *Ablabesmyia*. Within the latter, the creation of a new *reissi* group of species can reflect the unique combination of features (based on Roback's 1985 tab. 1, p.164), for example: (adult) absence of apical setae from dorsal lobe, absence of lateral lobe; (larva) maxillary palp with 2 segments plus a semi-sclerotized third, posterior parapod with a hook-shaped claw.

### Study area and ecology

Escondido is a shallow lake ( $Z_{\text{max}}$ : 8 m,  $Z_{\text{mean}}$ : 5.5 m) situated 30 km west of Bariloche city (North Patagonia) at 764 m a.s.l. The dominant vegetation in the watershed is a mixed forest of "coihue" (*Nothofagus dombeyi* (Mirb.) Blume), "ciprés" (*Austrocedrus chilensis* (D. Don) Florin & Boutleje), and "ñire" (*Nothofagus antarctica* (G. Foster) Oesterd). The littoral zone of the lake is colonized by *Schoenoplectus californicus* (Meyer) Soják (= *Scirpus californicus*) and *Potamogeton linguatus* Hangström, while *Nitella* sp. is distributed in deeper areas of the lake, but always at low densities.

The lake's temperature pattern shows a warm monomictic behavior (Balseiro & Modenutti 1990). Dissolved oxygen is always present at concentrations near saturation. Secchi disk visibility always reaches the maximum depth (8 m). Conductivity values range between 40  $\mu\text{S}/\text{cm}$  in winter and 80  $\mu\text{S}/\text{cm}$  by the end of the summer. The pH is neutral (7.02) and the concentration of chlorophyll a low (0.5 and 1.8  $\text{mg}/\text{m}^3$ ) for winter and summer, respectively (Diaz & Pedrozo 1993). On account of these characteristics the lake has been classified as oligotrophic (Balseiro & Modenutti 1990, Diaz & Pedrozo 1993).

*A. reissi* were found in both the littoral and the deep zone of the lake, with highest numbers in the former. Microcrustaceans (cladocerans and copepods), other chironomids and Acari make up their most frequent prey, as observed on slide-mounts of gut contents (Añón Suarez 1997).

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