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TABLE 1. Forewing nomenclature of veins. The present designation of the wing veins is based on Wootton (1979) and Mason (1990). The symbol (v) indicates that the authors consider the structure as a vein. The terminology of Eickwort (1969) is based on Michener (1944) and Lanham (1951).

Maa (1953)	Eickwort (1969)	present designation
(v) icu1	(v) cu-v	(v) 1cu-a
(v) 2A	frf (frenal fold)	frf
?	(v) V	(v) 1A
?	(v) M + Cu	(v) M + CuA
(v) mcu1	(v) M	(v) M
(v) Cu	(v) Cu	(v) CuA
(v) mcu2	(v) 1m-cu	(v) 1m-cu
?	(v) Cu2	(v) 2cu-a
?	(v) Cu1	(v) CuA
(v) mcu3	(v) 2m-cu	(v) 2m-cu
(v) M3 + 4	(v) M + Rs/M	(v) M + Rs/M
(v) M	(v) Rs	(v) Rs
(v) im1	(v) 1r-m	(v) 1r-m
(v) im2	(v) 2r-m	(v) 2r-m
(v) M1 + 2	(v) Rs	(v) Rs
?	?	Sc + R + Rs
?	(v) R1	(v) R
Pt	Stg (or Pt)	Pt
?	(v) C	(v) C
?	vf (vannal fold)	vf (+ CuP)
?	(v) r	(v) r-rs
?	smcr (submarginal crease)	smcr

TABLE 2. Forewing nomenclature of cells. The two different nomenclatures for cells proposed respectively by Michener (1944) and Eickwort (1969) do not correspond exactly with the modern nomenclature of veins, but as there is no possibility of confusion between the names of veins and those of cells, we introduce only few nomenclatural changes in order to minimize confusion in the terminology.

Maa (1953)	Michener (1944)	Eickwort (1969)	present designation
bm	R	?	cell R
1sm	1st M	?	cell 1M
2sm	2nd M	?	cell 2M
r	1st R1	1R1	cell 1R
3r	2nd R1	2R1	cell 2R
1m	1st Rs	1Rs	cell 1Rs
2m	2nd Rs	2Rs	cell 2Rs
3m	?	?	cell 3Rs
3sm	?	?	cell 3M
1a	?	?	cell A (anal cell)
?	1st Cu	?	cell 1 cu-a (1st cubito-anal cell)
?	2nd Cu	?	cell 2 cu-a (2nd cubito-anal cell)

TABLE 3. Hindwing nomenclature of veins.

Maa (1953)	Eickwort (1969)	Michener (1944)	Alexander (1991)	present designation
(v) M	(v) Rs	(v) Rs	(v) Rs	(v) Rs
?	(v) r-m	(v) r-m	?	(v) r-m
?	(v) R	(v) R	?	(v) Sc + R + Rs
(v) M1 + 2	?	?	(v) Rs	(v) Rs
(v) M3 + 4	?	?	(v) abscissa of M	(v) ab M
(v) mcu1	(v) M	(v) M	(v) M	(v) M
?	?	(v) M + Cu	(v) M + Cu	(v) M + CuA
(v) icu1	(v) m-cu	(v) cu-v	?	(v) cu-a
(v) Cu2 + 1A	(v) V	(v) V	(v) 1A	(v) 1A
(v) Cu1	?	?	(v) Cu	(v) CuA
?	jf (jugal fold)	?	(v) 2A	(v) 2A
?	smcr	?	?	smcr
?	vf (vanal fold)	?	?	vf

TABLE 4. Hindwing nomenclature of cells. We do not follow the nomenclature of Maa (1953) for the hindwing cells because it does not correspond to that for the forewing cells.

present designation	Maa (1953)
cell R (equivalent of Rc of forewing)	bm (proximal cell between R, Rs and Cu + M)
cell Rs	m (distal cell between Rs and abscissa of M)
cell M	sm (cell between CuA and M)
cell 2A (second anal cell)	jl (jugal lobe)
cell 1A (first anal cell)	vl (vanal lobe between 1A and 2A)

TABLE 5. Comparison of the names for points of intersection of wing veins. Unfortunately many workers have given different names to the points of intersection of the forewing veins of Hymenoptera (Louis 1966, 1971; Ruttner 1988; Alexander 1991). It is particularly regrettable that Ruttner and his school did not follow Louis' nomenclature which was complete but probably had the disadvantage of being written in French and not English. Note: there seems to be an error in figures 2–3 of Alexander (1991): point A in figure 2 is not the equivalent of point A in figure 3.

Louis (1971)	Alexander (1991)	Ruttner (1988)
O	A	H
S	B	B
X	C	I
V	D	A
Y	E	E
T	?	C
F	?	X
W′	?	Y (or L)!
U	?	D
W	?	M
?	?	E′
N	?	J
?	?	N
M	?	P
K	?	Q
H	?	R
I	?	O
R	?	G
Q	?	F
P	?	K

TABLE 6. Miocene fossil bees from France, Austria and Spain. Measurements are in mm. Characters of the forewing: FL, forewing length (*sensu* Ruttner 1988); FB, forewing width (*sensu* Ruttner 1988); Ci, cubital index (= CB/CA = a/b *sensu* Ruttner 1988, p. 42, fig. 4.7, p. 72, fig. 6.8) (= TS/TV *sensu* Louis 1971); Pci, Precubital index (= BJ/MH *sensu* Ruttner 1988) (= SN/WO *sensu* Louis 1971); Dbi, dumbbell index (= BA/IE *sensu* Ruttner 1988) (= SV/XY *sensu* Louis 1971); Ri, radial index (= E'X/E'Y *sensu* Ruttner 1988) (= YF'/YW' *sensu* Louis 1971); Dm, distance between vein icu-a and the point of separation between the veins M and CuA (= QR *sensu* Ruttner 1988; = HK *sensu* Louis 1971); this is positive if vein icu-a is in a proximal position relative to the point of separation between M and CuA, but otherwise negative; Lpt, length of the pterostigma (= LN *sensu* Ruttner 1988; = M′W′ *sensu* Louis 1971); Wp, width of the proximal half of cell 2Rs; Wd, width of distal half of cell 2Rs; Angle YVX (*sensu* Louis 1971); Angle KIH (*sensu* Louis 1971) (= angle QOR *sensu* Ruttner 1988).

The hindwing's characters, i.e. the length of the abscissa of vein M and the number of hooks are difficult to use because the hooks of the hindwing are rarely preserved. Also, the body's characters, i.e. the length of hairs on tergite 5 = h (*sensu* Ruttner and Tassencourt 1978, fig. 1), the length and width of the basitarsus, and the length of the body, are often difficult to use because of the degree of deformation.

	F_L	F_B	Ci	Pci	Dbi	Ri	Dm	Lpt	Wp	Wd	YVX	KIH
A. mellifera	9·3	3·2	1·2	3	0·7	1·3	0·3	0·8	0·4	0·4	20°	100°
A. florea	6·8	2·2	3·6	2·2	1·3	1·7	0·2	0·8	0·3	0·2	20°	110°
A. dorsata	14·2	4·7	4·8	3	1	1·1	0·7	1·2	0·7	0·7	27°	115°
A. cuenoti												
R.08383 Céreste	12·6	3·8	3·6	3·2	1	0·9	0	0·8	0·6	0·6	29°	105°
173EFN Céreste	12·6	3·7	3·4	3	1	0·8	0	0·8	0·6	0·6	32°	105°
R.08396 Céreste	≈11	3·6	?	?	?	0·8	0·2	0·7	0·5	0·5	?	110°
Apis sp. A												
R.08384 Camoin	10	3·4	2·3	3·6	1·8	1·3	0	0·7	0·4	0·4	10°	90°
R.08385 Camoin	≈10	?	?	?	1·3	1·3	0·2	0·7	0·4	0·4	15°	105°
A aquisextusensis												
R.08381 Aix	8·5	2·8	6	2·8	1·2	1·6	0·2	0·7	0·45	0·3	15°	110°
R.08382 Aix	8·5	2·8	?	2·9	?	1·7	0·15	0·8	0·45	0·3	?	90°
R.10421 Aix	8·6	≈3	6	2·9	1·5	1·8	0·2	0·8	0·4	0·3	15°	115°
Apis sp. B												
R.10429 Aix	11·9	?	1·8	3·2	0·8	1	0	0·3	0·45	0·3	28°	105°
Apis sp. C												
R.10426 Aix	10	≈3	2	2·6	1·2	1·4	0·2	0·6	0·3	0·3	25°	110°
Apis sp. D												
MPV-91-RM	9·5	2·3	3	3·9	1·1	1·3	0·3	0·8	0·3	0·3	20°	120°
1982 XIV Mun.	9·7	3·2	4·4	2·7	1	1	0·3	0·7	0·4	0·4	30°	120°
Apis sp. E												
B.31781 Parsch.	11·5	3·7	?	2·5	0·8	1·2	0·25	1	0·6	0·6	34°	125°
B.31782 Parsch.	?	?	3·1	2·4	0·9	1·3	?	0·9	0·6	0·6	50°	?
Apis sp. F												
R.10423 Bellver	10·5	3·6	2	3	0·9	0·9	0·4	0·7	0·4	0·4	32°	110°
R.10425 Bellver	10·7	3·6	3·6	3·5	0·8	1	0·6	0·6	0·5	0·5	32°	110°
R.08386 Bellver	9·6	3·2	2	3·5	0·8	0·9	0·5	0·6	0·4	0·4	35°	105°
R.10424 Bellver	10·4	?	2·9	4	1	0·9	0·5	1	0·5	0·5	25°	105°
R.10422 Bellver	10·8	3·7	3·8	2·9	1	1	0·5	0·7	0·5	0·5	29°	110°
R.10432 Bellver	10·4	?	3·3	3·5	1	1	0·5	0·8	0·5	0·5	27°	120°
R.10431 Bellver	≈10	?	?	3·3	?	1	0·5	0·8	0·5	0·5	?	110°
MNCNI-21614	10	≈3	3	3·5	0·9	0·9	0·5	0·7	0·5	0·5	30°	110°
Apis sp. G												
R.08389 Murat	12	3·7	3·6	3	1	1	0·5	0·7	0·6	0·6	30°	90°
R.08388 Murat	12·6	≈4	2·6	2·5	0·8	0·8	0·5	0·7	0·6	0·6	44°	112°
R.08390 Murat	11	3·8	2·7	2·7	0·7	0·8	0·6	0·9	0·6	0·6	37°	115°

TABLE 6 continued.

	F_L	F_B	Ci	Pci	Dbi	Ri	Dm	Lpt	Wp	Wd	YVX	KIH
Apis sp. H												
R.08391 Murat	8·5	?	3·7	3	1	1·2	0·3	0·9	0·4	0·4	30°	105°
R.08392 Murat	8·6	?	3	3	1	1·8	?	1·2	0·4	0·4	20°	?
Apis sp. I												
R.54924 Andan.	11	≈4	2·5	2·8	1	?	0·6	1	0·5	0·5	25°	110°
R.54922 Andan.	≈12	3·7	3	2·9	0·9	≈1	0·5	0·8	0·4	0·4	35°	110°
R.54921 Andan.	12·4	4·6	2·8	2·7	1	0·8	0·6	1	0·5	0·5	30°	110°
R.54926 Andan.	11·2	≈4	2·7	2·7	1	1·1	0·5	1	0·5	0·5	25°	110°
R.55166 Andan.	12·4	4·2	2	2·8	1	0·9	0·6	0·7	0·6	0·6	29°	115°
R.55206 Andan.	12·4	?	4	2·8	0·8	1	0·6	1	0·6	0·6	32°	118°
R.55167 Andan.	12·4	?	3·2	2·7	1	1·1	0·6	1	0·6	0·6	26°	105°
R.55169 Andan.	12·6	4·2	2·3	2·8	1·1	1·1	0·6	1	0·6	0·6	25°	110°
Apis sp. J												
R.55207 Andan.	8·6	2·8	5	2·7	1·5	1·7	0·3	0·8	0·4	0·4	15°	128°
R.55168 Andan.	8·8	2·8	5	2·3	1·5	1·6	0·2	0·8	0·4	0·4	12°	112°

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