

TABLE S1. *B. burgdorferi* sl detected at different collection sites of Austria

Province	Collection site	pos. Ticks	Bbss	Bg/Bbav	Ba	Bsp	Bl	Bv	Co-infections ^a
Styria		17/62	4	2	11	-	-	4	4
	Mürzzuschlag (Mz)	9/32	2	1	6	-	-	2	2
	Admont (Ad)	8/30	2	1	5	-	-	2	2
Salzburg		16/64	1	2	12	-	1	3	3
	Golgeg (G)	4/20	-	-	2	-	-	1	-
	Adnet (A)	3/20	-	1	2	-	-	-	-
	Neufahrn (N)	9/22	1	1	8	-	1	2	3
Lower Austria		12/64	3	2	4	-	3	3	3
	Hüttendorf (Hd)	2/12	-	1	-	-	-	1	-
	St.Pölten (SP)	3/13	1	-	3	-	-	-	1
	Irnfritz (Ir)	3/14	2	-	1	-	-	1	1
	Ebreichsdorf (E)	3/13	-	-	-	-	3	1	1
	Wolfenreith (W)	1/12	-	1	-	-	-	-	-
Burgenland		14/60	1	3	11	-	-	2	2
	Stoob (St)	6/20	1	3	5	-	-	-	2
	Oberwart (O)	3/20	-	-	2	-	-	1	-
	Breitenbrunn (B)	5/20	-	-	4	-	-	1	-
Vorarlberg		21/62	8	4	12	1	-	3	7
	Weiler (W)	6/21	3	-	2	-	-	1	-
	Klaus (K)	11/21	4	3	7	-	-	2	5
	Thüringen (T)	4/20	1	1	3	1	-	-	2
Tyrol		17/61	6	5	11	-	1	4	6
	Imst (Im)	6/20	1	1	4	-	1	3	2
	Mils (M)	8/21	4	4	5	-	-	1	4
	Fügen (F)	3/20	1	-	2	-	-	-	-
Upper Austria		17/60	6	5	8	-	-	6	7
	Dietachdorf (Di)	8/20	3	3	4	-	-	2	3
	Stallhofen (S)	5/20	2	1	3	-	-	2	3
	Niederrottenheim (No)	4/20	1	1	1	-	-	2	1
Carinthia		12/63	4	-	7	-	-	6	4
	Molzbichl (Mo)	4/20	-	-	3	-	-	1	-
	Drobollach am Faakersee (Dr)	4/22	2	-	2	-	-	2	1
	St.Paul im Lavantal (SPL)	4/21	2	-	2	-	-	3	3
Vienna		16/60	5	5	4	-	-	5	3
	Prater/Lusthaus (P)	5/30	4	-	1	-	-	-	-
	Lainzer Tiergarten (L)	11/30	1	5	3	-	-	5	3

^a multiple *B. burgdorferi* sl genospecies detected in a single tick

Abbreviations: Bbss, *B. burgdorferi sensu stricto*; Bg/Bbav, *B. garinii/B. bavariensis*; Ba, *B.*

afzelii; Bsp, *B. spielmanii*; Blus, *B. lusitaniae*; Bv, *B. valaisiana*;

TABLE S2. *Rickettsia* spp. detected at different collection sites of Austria

Province	Collection site	pos. Ticks	Rh	Rr	Rm	Rs	Rick. spp.
Styria		7/62	5	1	-	-	1
	Mürzzuschlag (Mz)	4/32	2	1	-	-	1
	Admont (Ad)	3/30	3	-	-	-	-
Salzburg		7/62	7	-	-	-	-
	Golgeg (G)	3/20	3	-	-	-	-
	Adnet (A)	-/20	-	-	-	-	-
	Neufahrn (N)	4/22	4	-	-	-	-
Lower Austria		12/64	2	8	-	-	2
	Hüttendorf (Hd)	2/12	-	1	-	-	1
	St.Pölten (SP)	-/13	-	-	-	-	-
	Irnfritz (Ir)	1/14	1	-	-	-	-
	Ebreichsdorf (E)	1/13	1	-	-	-	-
	Wolfenreith (W)	8/12	-	7	-	-	1
Burgenland		4/60	1	-	-	-	3
	Stoob (St)	-/20	-	-	-	-	-
	Oberwart (O)	3/20	1	-	-	-	2
	Breitenbrunn (B)	1/20	-	-	-	-	1
Vorarlberg		9/62	7	-	-	1	1
	Weiler (W)	4/21	3	-	-	-	-
	Klaus (K)	1/21	1	-	-	-	-
	Thüringen (T)	4/20	3	-	-	1	1
Tyrol		3/61	3	-	-	-	-
	Imst (Im)	2/20	2	-	-	-	-
	Mils (M)	-/21	-	-	-	-	-
	Fügen (F)	1/20	1	-	-	-	-
Upper Austria		6/60	4	1	-	-	1
	Dietachdorf (Di)	-/20	-	-	-	-	-
	Stallhofen (S)	3/20	2	1	-	-	-
	Niederrottenheim (No)	3/20	2	-	-	-	1 ^a
Carinthia		15/63	7	4	-	-	4
	Molzbichl (Mo)	7/20	4	2	-	-	1
	Drobollach am Faakersee (Dr)	4/22	2	2	-	-	-
	St.Paul im Lavantal (SPL)	4/21	1	-	-	-	3
Vienna		30/60	3	24	2	-	1
	Prater/Lusthaus (P)	8/30	2	4	2	-	-
	Lainzer Tiergarten (L)	22/30	1	20	-	-	1

^a *Rickettsia* spp. not belonging to the SFG Rickettsiae

Abbreviations: Rh, *R. helvetica*; Rr, *R. raoultii*; Rm, *R. monacensis*; Rs, *R. slovacica*; Rick.

Spp., *Rickettsia* spp. not further identified

TABLE S3. *Babesia* spp. detected at different collection sites of Austria

Province	Collection site	pos. Ticks	Bm	Bd	Bve
Styria		1/62	-	-	1
	Mürzzuschlag (Mz)	-/32	-	-	-
	Admont (Ad)	1/30	-	-	1
Salzburg		2/62	-	-	2
	Golgeg (G)	-/20	-	-	-
	Adnet (A)	1/20	-	-	1
	Neufahrn (N)	1/22	-	-	1
Lower Austria		1/64	-	1	-
	Hüttendorf (Hd)	-/12	-	-	-
	St.Pölten (SP)	-/13	-	-	-
	Irnfritz (Ir)	-/14	-	-	-
	Ebreichsdorf (E)	1/13	-	1	-
	Wolfenreith (W)	-/12	-	-	-
Burgenland		-/60	-	-	-
	Stoob (St)	-/20	-	-	-
	Oberwart (O)	-/20	-	-	-
	Breitenbrunn (B)	-/20	-	-	-
Vorarlberg		3/62	1	1	1
	Weiler (W)	-/21	-	-	-
	Klaus (K)	2/21	1	-	1
	Thüringen (T)	1/20	-	1	-
Tyrol		2/61	-	2	-
	Imst (Im)	2/20	-	2	-
	Mils (M)	-/21	-	-	-
	Fügen (F)	-/20	-	-	-
Upper Austria		2/60	1	-	1
	Dietachdorf (Di)	-/20	-	-	-
	Stallhofen (S)	1/20	1	-	-
	Niederrottenheim (No)	1/20	-	-	1
Carinthia		2/63	1	-	1
	Molz bichl (Mo)	1/20	1	-	-
	Drobollach am Faakersee (Dr)	1/22	-	-	1
	St.Paul im Lavantal (SPL)	-/21	-	-	-
		2/60	-	-	2
Vienna		1/30	-	-	1
	Prater/Lusthaus (P)	1/30	-	-	1
	Lainzer Tiergarten (L)	1/30	-	-	1

Abbreviations: Bm, *B. microti*; Bd, *B. divergens*; Bve, *B. venatorum*

TABLE S4. Microorganisms detected in nymphal and adult tick stages

Province	Tick stage	No. of ticks	Bor	Rick	Bab	CNM	Ap
Styria	Nymphs	41	10	4	1	2	-
	Adults	21	7	3	-	-	-
Salzburg	Nymphs	46	10	7	-	1	-
	Adults	16	6	-	2	-	-
Lower Austria	Nymphs	41	6	10	-	1	-
	Adults	23	6	2	1	1	-
Burgenland	Nymphs	58	14	3	-	3	-
	Adults	2	-	1	-	-	-
Vorarlberg	Nymphs	37	7	8	2	2	-
	Adults	25	14	1	1	-	-
Tyrol	Nymphs	48	14	1	2	4	-
	Adults	13	3	2	-	1	-
Upper Austria	Nymphs	40	10	4	2	2	1
	Adults	20	7	2	-	2	-
Carinthia	Nymphs	34	5	5	-	-	2
	Adults	29	7	10	2	-	-
Vienna	Nymphs	37	9	11	1	2	1
	Adults	23	7	19	1	3	-
Total (Austria)	Nymphs	382	85	53	8	17	4
	Adults	172	57	40	7	7	-

Abbreviations: Bor, *B. burgdorferi* sl; Rick, *Rickettsia* spp.; Bab, *Babesia* spp.; CNM,

Candidatus Neoehrlichia mikurensis; Ap, *A. phagocytophilum*

TABLE S5. Co-infections with two different microorganism genera (n=37 ticks) ^a

Genus	Species	Bor	Bbss	Ba	Bg/Bbav	Bl	Bv	Bsp	Rick	Rh	Rr	Rm	Rs	Rsp.	Bab	Bve	Bd	Bm	Ana/Ehr	Ap	CNM
Bor		n/a	n/a	n/a	n/a	n/a	n/a	n/a	22	8	10	-	1	3	4	4	-	-	6	1	5
	Bbss	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	1	2	-	1	-	2	2	-	-	2	1	1
	Ba	n/a	n/a	n/a	n/a	n/a	n/a	n/a	13	8	3	-	-	2	2	2	-	-	4	1	3
	Bg/Bbav	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	-	4	-	-	-	-	-	-	-	-	-	-
	Bl	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1	1	-	-	-	-	-	-	-	-	-	-	-
	Bv	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6	1	3	-	-	2	1	1	-	-	1	-	1
	Bsp	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1	-	-	-	-	1	-	-	-	-	-	-	-
Rick		22	4	13	4	1	6	1	n/a	n/a	n/a	n/a	n/a	n/a	3	1	-	2	-	-	-
	Rh	8	1	8	-	1	1	-	n/a	n/a	n/a	n/a	n/a	n/a	1	-	-	1	-	-	-
	Rr	10	2	3	4	-	3	-	n/a	n/a	n/a	n/a	n/a	n/a	1	-	-	1	-	-	-
	Rm	-	-	-	-	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-
	Rs	1	1	-	-	-	-	1	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	-
	Rsp.	3	-	2	-	-	2	-	n/a	n/a	n/a	n/a	n/a	n/a	1	1	-	-	-	-	-
Bab		4	2	2	-	-	1	-	3	1	1	-	-	1	n/a	n/a	n/a	n/a	2	-	2
	Bve	4	2	2	-	-	1	-	1	-	-	-	-	1	n/a	n/a	n/a	n/a	1	-	1
	Bd	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a	n/a	n/a	1	-	1
	Bm	-	-	-	-	-	-	-	2	1	1	-	-	-	n/a	n/a	n/a	n/a	-	-	-
Ana/Ehr		6	2	4	-	-	1	-	-	-	-	-	-	-	2	1	1	-	n/a	n/a	n/a
	Ap	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a	n/a
	CNM	5	1	3	-	-	1	-	-	-	-	-	-	-	2	1	1	-	n/a	n/a	n/a

^a the three detected triple-infections are excluded from this table; n/a not applicable

Abbreviations: Bor, *Borrelia* spp.; Bbss, *B. burgdorferi* sensu stricto; Ba, *B. afzelii*; Bg/Bbav, *B. garinii/B. bavariensis*; Blus, *B. lusitaniae*; Bv, *B. valaisiana*; Bsp, *B. spielmanii*; Rick, *Rickettsia* spp.; Rh, *R. helvetica*; Rr, *R. raoultii*; Rm, *R. monacensis*; Rs, *R. slovaca*; Rsp., unidentified *Rickettsia* spp.; Bab, *Babesia* spp.; Bve, *B. venatorum*; Bd, *B. divergens*; Bm, *B. microti*; Ap, *A. phagocytophilum*; CNM, *Candidatus N. mikurensis*