



## Ticks and Tick-Borne Diseases Publications From the Vector-Borne Disease Section California Department of Public Health

---

**1998 - 2019**

Vector-Borne Disease Section authors indicated by **bold** font.

**2019**

Karpathy S, Espinosa A, **Yoshimizu M**, Hacker J, **Padgett K**, Paddock CD. A novel TaqMan assay to detect *Rickettsia* 364D, the etiologic agent of Pacific Coast tick fever. *Journal of Clinical Microbiology* 2019 58(1). doi: 10.1128/JCM.01106-19

MacDonald AJ, O'Neill C, **Yoshimizu M**, **Padgett K**, Larsen AE. Tracking seasonal activity of the western blacklegged tick across California. *Journal of Applied Ecology* 2019 August 56(11). doi: 10.1111/1365-2664.13490

**Rose I**, **Yoshimizu M**, **Bonilla D**, Fedeova N, Lane RS, **Padgett K**. Phylogeography of *Borrelia* spirochetes in *Ixodes pacificus* and *Ixodes spinipalpis* ticks highlights differential acarological risk of tick-borne disease transmission in northern versus southern California. *PLoS ONE* 2019. doi: 10.1371/journal.pone.0214726

**2018**

**Billeter SA**, Osikowicz LM, **Burns JE**, Konde L, Gonzales BJ, **Hu R**, Kosoy MY. Molecular surveillance for *Bartonella*, *Borrelia*, and *Rickettsia* species in ticks from desert bighorn sheep (*Ovis canadensis*) and mule deer (*Odocoileus hemionus*) in southern California, USA. *Journal of Wildlife Diseases* 2018, 51(1): 161-164. doi: 10.7589/2017-02-047

Eisen RJ, Feirer S, **Padgett K**, Hahn M, Monaghan AJ, **Kramer V**, Lane RS, Kelly M. Modeling climate suitability of the western blacklegged tick in California. *Journal of Medical Entomology* 55(5), 2018, pp. 1133-1142. doi: 10.1093/jme/tjy060

Eremeeva ME, Weiner LM, Zambrano ML, Dasch GA, **Hu R**, **Vilcins I**, **Castro MB**, **Bonilla D**,

**Padgett K.** Detection and characterization of a novel spotted fever group Rickettsia genotype in *Haemaphysalis leporispalustris* from California, USA. *Ticks and Tick-borne Diseases* 9(4), 2018, pp 814-818. doi: 10.1016/j.ttbdis.2018.02.023

O'Conner KE, **Kjemtrup A**, Conrad PA, Swei A. A highly specific and novel PCR protocol for detection of *Babesia duncani* in wildlife and vector samples. *Journal of Parasitology* 104(4), 2018, pp. 429–432. doi: 10.1645/17/155

Paddock C, **Yoshimizu MH**, Zambrano ML, Lane RS, Ryan BM, Espinosa A, Hacker JK, Karpathy SE, **Padgett KA.** *Rickettsia* species isolated from *Dermacentor occidentalis* (Acari: Ixodidae) from California. *Journal of Medical Entomology* 2018; 55(6):1555-1560. doi: 10.1093/jme/tjy100

Salkeld DJ, Nieto NC, Bonilla DL, **Yoshimizu MH, Padgett KA.** *Borrelia miyamotoi* infections in small mammals, California, USA. *Emerging Infectious Diseases* 2018;24(12):2356-2359. <https://doi.org/10.3201/eid2412.171632>

Swei A, O'Connor KE, Couper LI, Thekkiniath J, Conrad PA, **Padgett KA, Burns J, Yoshimizu MH, Gonzales B, Munk B, Shirkey N, Konde L, Ben Mamoun C, Lane RS, Kjemtrup A.** Evidence for transmission of the zoonotic apicomplexan parasite *Babesia duncani* by the tick *Dermacentor albipictus*. *International Journal for Parasitology*. 2019 Feb;49(2):95-103. doi: 10.1016/j.ijpara.2018.07.002

## 2017

**Billeter SA, Yoshimizu MH, Hu R.** Species composition and temporal distribution of adult Ixodid ticks and prevalence of *Borrelia burgdorferi* sensu lato and *Rickettsia* species in Orange County, California. *Journal of Vector Ecology* 2017 42(1): 189-192. doi: 10.1111/jvec.12255

Drexler NA, Yaglom H, Casal M, Fierro M, Kriner P, Murphy B, **Kjemtrup A, Paddock CD.** Fatal Rocky Mountain Spotted Fever along the United States-Mexico Border, 2013-2016. *Emerg Infect Dis*. 2017 Oct;23(10):1621-1626. doi: 10.3201/eid2310.170309

Kilpatrick AM, Dobson ADM, Levi T, Salkeld DJ, Swei A, Ginsberg HS, **Kjemtrup A, Padgett KA, Jensen PM, Fish D, Ogden NH, Diuk-Wasser MA.** Lyme disease ecology in a changing world: consensus, uncertainty and critical gaps for improving control. *Philos Trans R Soc Lond B Biol Sci*. 2017;372(1722). pii: 20160117. doi: 10.1098/rstb.2016.0117

Kingry LC, Replogle A, Dolan M, Sexton C, **Padgett K**, Schriefer M. Chromosome and Large Linear Plasmid Sequences of a *Borrelia miyamotoi* Strain Isolated from *Ixodes pacificus* Ticks from California. *Genome Announcements* 2017 Sep 14;5(37). pii: e00960-17. doi: 10.1128/genomeA.00960-17

## 2016

**Padgett KA, Bonilla D**, Eremeeva ME, Glaser C, Lane RS, **Cole-Porse C**, Castro MB, Messenger S, Espinosa A, Hacker J, **Kjemtrup A**, Ryan B, Scott J, **Hu R, Yoshimizu MH**, Dasch GA, **Kramer V**. The Eco-epidemiology of Pacific Coast Tick Fever in California. *PLOS Neglected Tropical Diseases*. 2016 10 (10): 1-17. doi: 10.1371/journal.pntd.0005020

Lane, R; **Kjemtrup, AM**. [Pest Notes: Lyme Disease in California UC ANR Publication 7485](http://ipm.ucanr.edu/PMG/PESTNOTES/pn7485.html) (<http://ipm.ucanr.edu/PMG/PESTNOTES/pn7485.html>)

## 2015

Forrester JD, **Kjemtrup AM**, Fritz CL, Marsden-Haug N, Nichols JB, Tengelsen LA, Sowadsky R, DeBess E, Cieslak PR, Weiss J, Evert N, Ettestad P, Smelser C, Iralu J, Nett RJ, Mosher E, Baker JS, Van Houten C, Thorp E, Geissler AL, Kugeler K, Mead P; Centers for Disease Control and Prevention (CDC). Tickborne relapsing fever - United States, 1990-2011. *MMWR Morb Mortal Wkly Rep*. 2015 Jan 30;64(3):58-60.

Salkeld D, **Padgett K**, Jones JH, Antolin MF. A public health perspective on patterns of biodiversity and zoonotic disease. *Proceedings of the National Academy of Sciences*, 2015 112(46) E6261. <https://doi.org/10.1073/pnas.1517640112>

## 2014

Green, G; **Kjemtrup, A**; Ferris, M. Local Frontiers: Tick-borne Infections in California. *Sonoma Medicine*. Fall 2014, 65 (4): 5-10.

**Padgett K, Bonilla D, Kjemtrup A, Vilcins I, Yoshimizu M**, Hui L, Sola, M, Quintana M, **Kramer, V**. Large scale spatial risk and comparative prevalence of *Borrelia miyamotoi* and *Borrelia burgdorferi* sensu lato in *Ixodes pacificus*. *PLoS ONE* 2014; 9(10): e110853. doi: 10.1371/journal.pone.0110853

Brummitt SI, Barbour AG, Hue F, **Kjemtrup AM**. Molecular characterization of *Borrelia burgdorferi* from case of autochthonous Lyme arthritis. *Emerging Infectious Diseases*

**Salkeld DJ, Castro MB, Bonilla, D, Kjemtrup, A, Kramer VL, Lane, RS, Padgett. KA.** Seasonal activity patterns of the western black-legged tick, *Ixodes pacificus*, in relation to onset of human Lyme disease in northwestern California. *Ticks and Tick-borne Diseases* 2014; 5:790-796.

### 2013

Johnston SH, Glaser CA, **Padgett KA**, Wadford DA, Espinosa A, Espinosa N, Eremeeva ME, Tait K, Hobson B, Shtivelman S, Hsieh C, Messenger SL. *Rickettsia* sp. 364D causing a cluster of eschar-associated illness, California. *Pediatric Infectious Disease Journal*. 2013 Sep; 32(9):1036-9. doi: 10.1097/INF.0b013e318296b24b

**Salkeld DJ, Padgett KA**, Jones JH. A meta-analysis suggesting that the relationship between biodiversity and risk of zoonotic pathogen transmission is idiosyncratic. *Ecology Letters*. 2013 May; 16(5):679-86. doi: 10.1111/ele.12101

### 2011

Beeler E, Abramowitz KF, Zambrano ML, Sturgeon MM, Khalaf N, **Hu R**, Dasch GA, Eremeeva ME. A focus on dogs and *Rickettsia massiliae*-infected *Rhipicephalus sanguineus* in California. *American Journal of Tropical Medicine and Hygiene*. 2011; 84: 244-249.

Bloch EM, Herwaldt BL, Leiby DA, Shaieb A, Herron RM, Chervenak M, Reed W, Hunter R, Ryals R, Hagar W, Xayavong MV, Slemenda SB, Pieniazek NJ, Wilkins PP, **Kjemtrup AM**. The third described case of transfusion-transmission of *Babesia duncani*. *Transfusion*. 2011; doi: 10.1111/j.1537-2995.2011.03467.x Article first published online 13 DEC 2011.

**Fritz CL**, Kriner P, Garcia D, **Padgett K**, Espinosa A, Chase R, **Hu R**, Messenger SL. Tick infestation and spotted-fever group *Rickettsia* in shelter dogs, California, 2009. *Zoonoses and Public Health* 59(1) pp.4-7. doi: 10.1111/j.1863-2378.2011.01414

**Padgett KA, Bonilla DL**. Novel exposure sites for nymphal *Ixodes pacificus* within picnic areas. *Ticks and Tick-Borne Diseases*. 2011; 2: 191-195.

Wright SA, **Tucker JR**, Donohue AM, **Castro MB**, Kelly KL, **Novak MG**, Macedo PA. Avian hosts of *Ixodes pacificus* (Acari: Ixodidae) and detection of *Borrelia burgdorferi* in larvae feeding on Oregon junco. *Journal of Medical Entomology*. 2011; 48(4): 852-859.

## 2010

Shapiro MR, **Fritz CL**, Tait K, Paddock CD, Nicholson WL, Abramowicz KF, Karpathy SE, Dasch GA, Sumner JW, Adem PV, Scott JJ, **Padgett KA**, Zaki SR, Eremeeva ME. *Rickettsia* 364D: A newly recognized cause of eschar-associated illness in California. *Clinical Infectious Diseases* 2010; 50:541-8.

## 2009

**Fritz CL**. Emerging tick-borne diseases. *Veterinary Clinics of North America: Small Animal Practice* 2009; 39(2):265-278.

**Padgett KA**, Casher L, Stephens S, Lane RS. Effect of prescribed burn for tick control in California chaparral. *Journal of Medical Entomology* 2009; 46(5):1138-1145.

Schwan TG, Raffel SJ, Schrupf ME, Webster LS, Marques AR, Spano R, Rood M, **Burns J**, **Hu R**. Tick-borne relapsing fever and *Borrelia hermsii*, Los Angeles County, California, USA. *Emerging Infectious Diseases* 2009; 15:1026-1031.

## 2008

Chigerwe M, **Fritz CL**, **Kjemtrup AM**. Heartwater (Cowdriosis). In: Haskell SRR, ed. *Blackwell's Five Minute Veterinary Consult: Ruminant* Wiley-Blackwell Press, Ames, Iowa: 2008; 392-393.

**Kjemtrup AM**, **Fritz CL**. Lyme borreliosis. In: Haskell SRR, ed. *Blackwell's Five Minute Veterinary Consult: Ruminant*. Wiley-Blackwell Press, Ames, Iowa: 2008; 498-499.

Salkeld DJ, Leonhard S, Girard YA, Hahn N, Mun J, **Padgett KA**, Lane RS. Identifying the reservoir hosts of the Lyme disease spirochete *Borrelia burgdorferi* in California: the role of the western gray squirrel (*Sciurus griseus*). *American Journal of Tropical Medicine and Hygiene* 2008; 79:535-40.

Wikswow ME, **Hu R**, Dasch GA, **Krueger L**, Arugay A, Jones K, Hess B, Bennett S, **Kramer V**, Eremeeva ME. Detection and identification of spotted fever group rickettsiae in *Dermacentor* species from southern California. *Journal of Medical Entomology* 2008; 45:509-16.

## 2007

- Castro MB**, Wright SA. Vertebrate hosts of *Ixodes pacificus* (Acari: Ixodidae) in California. *Journal of Vector Ecology* 2007; 32:140-149.
- Kjemtrup AM**. Surveillance for vector-borne diseases in California. Proceedings of the 23<sup>rd</sup> Annual Vertebrate Pest Conference. (R.M. Timm and J.M. O'Brien, Eds.) 2007; pp 304-307.
- Metzger ME**, **Hu R**. Brown dog tick: A potential vector for Rocky Mountain spotted fever in California. Proceedings and Papers of the 75th Annual Conference of the Mosquito and Vector Control Association of California 2007; 75:100-101.
- Wikswa ME, **Hu R**, **Metzger ME**, Eremeeva ME. Detection of *Rickettsia rickettsii* and *Bartonella henselae* in *Rhipicephalus sanguineus* ticks from California. *Journal of Medical Entomology* 2007; 44:158-161.

## 2006

- Conrad PA, **Kjemtrup AM**, Carreno RA, Thomford JT, Wainwright K, Eberhard M, Quick R, Telford SR III, Herwaldt BL. Description of *Babesia duncani* n. sp. (Apicomplexa: Babesiidae) from humans and its differentiation from other piroplasms. *International Journal for Parasitology* 2006; 36 (7):779-789.
- Eisen RJ, Lane RS, **Fritz CL**, Eisen L. Spatial patterns of Lyme disease risk in California based on disease incidence data and modeling of vector-tick exposure. *American Journal of Tropical Medicine & Hygiene* 2006; 75:669-676.
- Kjemtrup AM**, Conrad PA. A review of the small canine piroplasms from California: *B. conradae* in the literature. *Veterinary Parasitology* 2006; 138:112-117.
- Kjemtrup AM**, Wainwright K, Miller M, Penzhorn BL, Carreno RA. *Babesia conradae*, sp. Nov., a small canine *Babesia* identified in California. *Veterinary Parasitology* 2006; 138:103-111.
- Wright SA, Lemenager DA, **Tucker JR**, Armijos MV, Yamamoto SA. An avian contribution to the presence of *Ixodes pacificus* (Acari: Ixodidae) and *Borrelia burgdorferi* on the Sutter Buttes of California. *Journal of Medical Entomology* 2006; 43:368-374.

## 2005

**Fritz CL, Bronson LR, Smith CR, Crawford-Miksza L, Yeh E, Schnurr D.** Clinical, epidemiologic, and environmental surveillance for ehrlichiosis and anaplasmosis in an endemic area of northern California. *Journal of Vector Ecology* 2005; 30:4-10.

## 2004

**Fritz CL, Bronson LR, Smith CR, Schriefer ME, Tucker JR, Schwan TG.** Isolation and characterization of *Borrelia hermsii* associated with two foci of tick-borne relapsing fever in California. *Journal of Clinical Microbiology* 2004; 42(3):1123-1128.

**Hu R, Murray H, Hess B, Walker TW, Linthicum KJ.** Seasonal abundance of adult *Ixodes pacificus* in the San Jacinto Mountains, Riverside County. *Proceedings and Papers of the Seventy-Second Annual Conference of the Mosquito and Vector Control Association of California* 2004; 72:73-76.

**Hu R, Spano R, Rood M, Walker TW, Linthicum KJ.** Temporal distribution of adult *Ixodes pacificus* at Griffith Park, Los Angeles County. *Proceedings and Papers of the Seventy-Second Annual Conference of the Mosquito and Vector Control Association of California* 2004; 72:61-62.

**Hui LT, Castro MB, Clover J, Thompson MA, Husted S.** Summary of *Ixodes pacificus* surveillance and testing for *Borrelia burgdorferi* in California. *Proceedings and Papers of the Seventy-Second Annual Conference of the Mosquito and Vector Control Association of California* 2004; 72:77-83.

Johnson JL, Ginsberg HS, Zhioua E, Whitworth UG, Markowski D, Hyland KE, **Hu R.** Passive tick surveillance, dog serology, and incidence of human Lyme disease. *Vector-borne and Zoonotic Diseases* 2004; 4(2):137-142.

**Kjemtrup AM.** Physician response to tick-borne disease questionnaire. *Medical Board of California Action Report* 2004; February: 8-9.

**Walker TW, Hu R, Linthicum KJ, Metzger ME, Frederickson S, Molina L.** Preventive measures for reducing the risk of tick-borne relapsing fever in Mono and Inyo Counties, California. *Proceedings and Papers of the Seventy-Second Annual Conference of the Mosquito and Vector Control Association of California* 2004; 72:58-60.

## 2003

Conrad PA, Miller M, **Kjemtrup AM**, Smith WA, Garner IA. The human-wildlife-domestic animal interface provides exciting research opportunities for parasitologists. *Journal of Parasitology* 2003; 89 (Suppl.):527-536.

Eisen RJ, Eisen L, **Castro MB**, Lane RS. Environmentally related variability in risk of exposure to Lyme disease spirochetes in northern California: Effect of climatic conditions and habitat type. *Environmental Entomology* 2003; 32:1010-1018.

**Fritz CL, Kjemtrup AM**. Zoonosis Update: Lyme borreliosis. *Journal of the American Veterinary Medical Association* 2003; 223:1261-70.

**Hu R, Walker TW, Linthicum K**. A regional-based study to evaluate Lyme disease transmission risk in southern California. *Proceedings and Papers of the Seventy-First Annual Conference of the Mosquito and Vector Control Association of CA*, 2003; 71: 54- 57.

**Walker TW, Hu R, Linthicum KJ**, Frederickson S, Molina L, Luna MG, Barbour AG. Ecological conditions associated with tick-borne relapsing fever in Inyo and Mono counties, California, 2000-2002. *Proceedings and Papers of the Seventy-First Annual Conference of the Mosquito and Vector Control Association of California*, 2003; 64-68.

## 2002

Dworkin MS, Shoemaker PC, **Fritz CL**, Dowell ME, Anderson DE Jr. The epidemiology of tick-borne relapsing fever in the United States. *American Journal of Tropical Medicine & Hygiene* 2002; 66:753-8.

## 2001

**Castro MB**, Nicholson WL, **Kramer VL**, Childs JE. Persistent infection in *Neotoma fuscipes* (Muridae: Sigmondontinae) with *Ehrlichia phagocytophila* sensu lato. *American Journal of Tropical Medicine and Hygiene* 2001; 65:261-267.

**Fritz, CL**, Vugia, DJ. Clinical issues in Lyme borreliosis: a California perspective. *Infectious Disease Review* 2001; 3(3):111-122.

**Kjemtrup AM**, Conrad PA. Emerging perspectives on human Babesiosis. In Scheld WM, Craig WA, Hughes JM, eds. *Emerging Infections 5*. Washington, D. C. 2001 ASM Press; 175-196.



## 2000

**Hu R**, Durden LA, Oliver JH. Winter ectoparasites of mammals in the northeastern Piedmont area of Georgia. *Journal of Vector Ecology* 2000; 25:23-7.

**Hu R**, Rowley WA. Relationship between blood intake of the nymphal stage and resultant sexes in *Ixodes scapularis* and *Dermacentor variabilis* ticks (Acari: Ixodidae). *Journal of Medical Entomology* 2000; 37:198-200.

Hyland KE, Bernier J, Markowski D, MacLachlan A, Amr Z, Pitocchelli J, Myers J, **Hu R**. Records of ticks (Acari:Ixodidae) parasitizing birds (Aves) in Rhode Island, USA. *International Journal of Acarology* 2000; 26:183-92.

Pusterla N, Chang C, Chomel B, Chae J, Foley J, DeRock E, **Kramer V**, Lutz H, Madigan J. Serologic and molecular evidence of *Ehrlichia* spp. in coyotes in California. *Journal of Wildlife Diseases* 2000; 36:494-9.

Wright SA, **Thompson MA**, Miller MJ, Knerl KM, Elms SL, Karpowicz JC, Young JF, **Kramer VL**. Ecology of *Borrelia burgdorferi* in ticks (Acari: Ixodidae), rodents, and birds in the Sierra Nevada foothills, Placer County, California. *Journal of Medical Entomology* 2000; 37:909-18.

## 1999

**Kramer VL**, Randolph MP, **Hui LT**, Irwin WE, Gutierrez AG, Vugia DJ. Detection of the agents of human ehrlichioses in ixodid ticks from California. *American Journal of Tropical Medicine & Hygiene* 1999; 60:62-5.

**Hui LT**, Pontiflet E, Scott HA. Habitat and seasonal abundance of ticks in urban recreation areas of Alameda County, California, 1992-1996. *Proceedings of the California Mosquito and Vector Control Association* 1999; 66:56-66.

Monson SE, **Bronson LR**, **Tucker JR**, **Smith CR**. Experimental and field evaluations of two acaricides for control of *Ixodes pacificus* (Acari: Ixodidae) in Northern California. *Journal of Medical Entomology* 1999; 36:660-5.

Nicholson WL, **Castro MB**, **Kramer VL**, Sumner JW, Childs JE. Dusky-footed wood rats (*Neotoma fuscipes*) as reservoirs of granulocytic ehrlichiae (Rickettsiales: Ehrlichieae) in Northern California. *Journal of Clinical Microbiology* 1999; 37:3323-7.

**1998**

Campbell G, **Fritz C**, Fish D, Nowakowski J, Nadelman, R, Wormser G. Estimation of the incidence of Lyme disease. *American Journal of Epidemiology*. 1998; 148:1018-26.

**Fritz C**, Glaser C. Ehrlichiosis. In: Hughes, J., and J. Conte, eds. *Infectious Disease Clinics of North America*. 1998; 12(1):123-36.