

AMPHIBIANS

- Aertsen, A. M. H. J., Vlaming, M. S. M. G., Eggermont, J. J. & Johannesma, P. I. M. (1986). Directional hearing in the grassfrog (*Rana temporaria* L.). II. Acoustics and modeling of the auditory periphery. *Hear. Res.*, **21**, 17-40.
- Akef, M. S. A. & Schneider, H. (1993). Reproductive behaviour and mating call pattern in Degen's toad *Bufo vittatus* in Egypt (Bufonidae, Amphibia). *J. Afr. Zool.*, **107**, 97-104.
- Alder, T. B. & Rose, G. J. (1998). Long-term temporal integration in the anuran auditory system. *Nat. Neurosci.*, **1**, 519-523.
- Alder, T. B. & Rose, G. J. (2000). Integration and recovery processes contribute to the temporal selectivity of neurons in the midbrain of the northern leopard frog, *Rana pipiens*. *J. Comp. Physiol. A.*, **186**, 923-937.
- Allan, S. E. & Simmons, A. M. (1994). Temporal features mediating call recognition in the green treefrog, *Hyla cinerea*: Amplitude modulation. *Anim. Behav.*, **47**, 1073-1086.
- Anderson, M. J. & Micheli-Tzanakou, E. (1997). Resonant cavity dependence of auditory-nerve fibers of the frog *Rana pipiens*. *J. Acoust. Soc. Am.*, **102**, 3124.
- Backwell, P. R. Y. & Jennions, M. D. (1993). Mate choice in the neotropical frog *Hyla ebraccata*: sexual selection, mate recognition and signal selection. *Anim. Behav.*, **45**, 1248-1250.
- Backwell, P. R. Y. & Passmore, N. I. (1990). Aggressive interactions and intermale spacing in choruses of the leaf-folding frog, *Afrixalus delicatus* choruses. *S. Afr. J. Zool.*, **25**, 133-137.
- Baird, R. A., Torres, M. A. & Schuff, N. R. (1993). Hair cell regeneration in the bullfrog vestibular otolith organs following aminoglycoside toxicity. *Hear. Res.*, **65**, 164-174.
- Baird, R. A., Bales, S., Fiorillo, C. & Schuff, N. R. (1995). In vivo and in vitro evidence for non-mitotic hair cell regeneration in the bullfrog vestibular otolith organ. *Assoc. Res. Otolaryngol. Abst.*, **45**, 178.
- Bauer, R. H. (1993). Lateralization of neural control for vocalization by the frog (*Rana pipiens*). *Psychobiology*, **21**, 243-248.
- Bee, M. A. & Gerhardt, H. C. (2000). Getting to know you: Habituation as a mechanism for territorial neighbor recognition. *Am. Zool.*, **40**, 940.
- Bee, M. A. & Schachtman, T. R. (2000). Is habituation a mechanism for neighbor recognition in green frogs? *Behav. Ecol. Sociobiol.*, **48**, 165-168.
- Bee, M. A., Perrill, S. A. & Owen, P. C. (1999). Size assessment in simulated territorial encounters between male green frogs (*Rana clamitans*). *Behav. Ecol. Sociobiol.*, **45**, 177-184.
- Bee, M. A. & Gerhardt, H. C. (2001). Neighbour-stranger discrimination by territorial male bullfrogs (*Rana catesbeiana*): II. Perceptual basis. *Anim. Behav.*, **62**, 1141-1150.
- Bee, M. A. & Gerhardt, H. C. (2001). Habituation as a mechanism of reduced aggression between neighboring territorial male bullfrogs (*Rana catesbeiana*). *J. Comp. Psychol.*, **115**, 68-82.
- Bee, M. A. & Gerhardt, H. C. (2001). Neighbour-stranger discrimination by territorial male bullfrogs (*Rana catesbeiana*): I. Acoustic basis. *Anim. Behav.*, **62**, 1129-1140.
- Bee, M. A. & Perrill, S. A. (1996). Responses to conspecific advertisement calls in the green frog (*Rana clamitans*) and their role in male-male communication. *Behaviour*, **133**, 283-301.
- Benedix Jr., J. H. & Narins, P. M. (1999). Competitive calling behavior by male treefrogs, *Eleutherodactylus coqui* (Anura: Leptodactylidae). *Copeia*, **1999**, 1118-1122.
- Bertram, S., Berrill, M. & Nol, E. (1996). Male mating success and variation chorus attendance within and among breeding seasons in the gray treefrog (*Hyla versicolor*). *Copeia*, **1996**, 729-734.
- Bevier, C. R. (1995). *Physiological constraints on calling activity in neotropical frogs*. Ph.D. dissertation; The University of Connecticut, Storrs.
- Bevier, C. R. (1997). Utilization of energy substrates during calling activity in tropical frogs. *Behav. Ecol. Sociobiol.*, **41**, 343-352.
- Bisazza, A., Rogers, L. J. & Vallortigara, G. (1998). The origins of cerebral asymmetry: A review of evidence of behavioural and brain lateralization in fishes, reptiles and amphibians. *Neurosci. Biobehav. Rev.*, **22**, 411-426.
- Bishop, P. J., Jennions, M. D. & Passmore, N. I. (1995). Chorus size and call intensity: Female choice in the painted reed frog, *Hyperolius marmoratus*. *Behaviour*, **132**, 721-731.
- Bishop, P. J. (1994). *Aspects of social organization in anuran choruses*. PhD dissertation. University of the Witwatersrand; Johannesburg.
- Blaustein, A. R. & Waldman, B. (1992). Kin recognition in anuran amphibians. *Anim. Behav.*, **44**, 207-221.
- Boatright-Horowitz, S. S. & Simmons, A. M. (1997). Transient "deafness" accompanies auditory development during metamorphosis from tadpole to frog. *Proc. Natl. Acad. Sci. USA*, **94**, 14877-14882.
- Boatright-Horowitz, S. S., Garabedian, C. E., Odabashian, K. & Simmons, A. M. (1999). Coding of amplitude modulation in the auditory midbrain of the bullfrog (*Rana catesbeiana*) across metamorphosis. *J.*

- Comp. Physiol. A.*, **184**, 219-231.
- Boatright-Horowitz, S. S., Cheney, C. A. & Simmons, A. M. (1999). Atmospheric and underwater propagation of bullfrog vocalizations. *Bioacoustics*, **9**, 257-280.
- Boatright-Horowitz, S. L., Horowitz, S. S. & Simmons, A. M. (2000). Patterns of vocal interactions in a bullfrog (*Rana catesbeiana*) chorus: preferential responding to far neighbors. *Ethology*, **106**, 701-712.
- Bodner, D. A. (1996). The separate and combined effects of harmonic structure, phase, and FM on female preferences in the barking treefrog (*Hyla gratiosa*). *J. Comp. Physiol. A.*, **178**, 173-182.
- Bogert, C. M. & Wells, K. D. (1999). Sounds of North American frogs. The biological significance of voice in frogs. *Copeia*, **1999**, 230-231.
- Boistel, R. & Sueur, J. (1997). The female of *Platymantis vitiensis* (Amphibia, Anura) calls in the absence of the male. *Compt. Rendus Acad. Sci. Ser. III, Sci. Vie*, **320**, 933-941.
- Bosch, J., De la Riva, I. & Marquez, R. (2000). Advertisement calls of seven species of hyperoliid frogs from Equatorial Guinea. *Amphibia-Reptilia*, **21**, 246-255.
- Bosch, J., Rand, A. S. & Ryan, M. J. (2000). Acoustic competition in *Physalaemus pustulosus*, a differential response to calls of relative frequency. *Ethology*, **106**, 865-871.
- Bosch, J. & Marquez, R. (1996). Acoustic competition in male midwife toads *Alytes obstetricans* and *Alytes cisternasi*: Response to neighbor size and calling rate. Implications for female choice. *Ethology*, **102**, 841-855.
- Bosch, J. & Marquez, R. (2001). Female courtship call of the Iberian midwife toad (*Alytes cisternasi*). *J. Herpetol.*, **35**, 647-652.
- Bosch, J. (2001). Female reciprocal calling in the Iberian midwife toad (*Alytes cisternasi*) varies with male call rate and dominant frequency: implications for sexual selection. *Naturwissenschaften*, **88**, 434-437.
- Bosch, J., Rand, A. S. & Ryan, M. J. (2000). Signal variation and call preferences for whine frequency in the tungara frog, *Physalaemus pustulosus*. *Behav. Ecol. Sociobiol.*, **49**, 62-66.
- Bourne, G. R., Collins, A. C., Holder, A. M. & McCarthy, C. L. (2001). Vocal communication and reproductive behavior of the frog *Colostethus beebei* in Guyana. *J. Herpetol.*, **35**, 272-281.
- Boyd, S. K. (1997). Brain vasotocin pathways and the control of sexual behaviors in the bullfrog. *Brain Res. Bull.*, **44**, 345-350.
- Boyd, S. K. (1994). Arginine vasotocin facilitation of advertisement calling and call phonotaxis in bullfrogs. *Horm. Behav.*, **28**, 232-240.
- Boyd, S. K., Wissing, K. D., Heinsz, J. E. & Prins, G. S. (1999). Androgen receptors and sexual dimorphisms in the larynx in the bullfrog. *Gen. Comp. Endocrinol.*, **113**, 59-68.
- Boyd, S. K. (1992). Sexual differences in hormonal control of release calls in bullfrogs. *Horm. Behav.*, **26**, 522-535.
- Brenowitz, E. A. (1989). Neighbor call amplitude influences aggressive behavior and intermale spacing in choruses of the pacific treefrog (*Hyla regilla*). *Ethology*, **83**, 69-79.
- Brenowitz, E. A. & Rose, G. J. (1999). Female choice and plasticity of male calling behaviour in the Pacific treefrog. *Anim. Behav.*, **57**, 1337-1342.
- Brenowitz, E. A. & Rose, G. J. (1994). Behavioural plasticity mediates aggression in choruses of the Pacific treefrog. *Anim. Behav.*, **47**, 633-641.
- Brooke, P. N., Alford, R. A. & Schwarzkopf, L. (2000). Environmental and social factors influence chorusing behaviour in a tropical frog: examining various temporal and spatial scales. *Behav. Ecol. Sociobiol.*, **49**, 79-87.
- Brown, R. M. & Iskandar, D. T. (2000). Nest site selection, larval hatching, and advertisement calls, of *Rana arathooni* from southwestern Sulawesi (Celebes) island, Indonesia. *J. Herpetol.*, **34**, 404-413.
- Brush, J. S. & Narins, P. M. (1989). Chorus dynamics of a neotropical amphibian assemblage: comparison of computer simulation and natural behaviour. *Anim. Behav.*, **37**, 33-44.
- Burmeister, S., Konieczka, J. & Wilczynski, W. (1999). Agonistic encounters in a cricket frog (*Acris crepitans*) chorus: Behavioral outcomes vary with local competition and within the breeding season. *Ethology*, **105**, 335-348.
- Burmeister, S. & Wilczynski, W. (1996). Response of male cricket frogs to stimulus calls with different temporal features. *Am. Zool.*, **36**, 94A.
- Burmeister, S. S. & Wilczynski, W. (2001). Social context influences androgenic effects on calling in the green treefrog (*Hyla cinerea*). *Horm. Behav.*, **40**, 550-558.
- Burmeister, S. & Wilczynski, W. (2000). Social signals influence hormones independently of calling behavior in the treefrog (*Hyla cinerea*). *Horm. Behav.*, **38**, 201-209.
- Burmeister, S., Wilczynsky, W. & Ryan, M. J. (1999). Temporal call changes and prior experience affect graded signalling in the cricket frog. *Anim. Behav.*, **57**, 611-618.
- Busby, W. H. & Brecheisen, W. R. (1997). Chorusing phenology and habitat associations of the crawfish frog, *Rana areolata* (Anura: Ranidae) in Kansas. *Southwest. Nat.*, **42**, 210-217.

- Bush, S. L., Dyson, M. L. & Halliday, T. R. (1996). Selective phonotaxis by males in the Majorcan midwife toad. *Proc. R. Soc. Lond. B.*, **263**, 913-917.
- Bush, S. L., Gerhardt, H. C. & Schul, J. (2002). Pattern recognition and call preferences in treefrogs (Anura: Hylidae): a quantitative analysis using a no-choice paradigm. *Anim. Behav.*, **63**, 7-14.
- Bush, S. L. (1997). Vocal behavior of males and females in the Majorcan midwife toad. *J. Herpetol.*, **31**, 251-257.
- Capranica, R. R. (1992). The untuning of the tuning curve: is it time? *Sem. Neurosci.*, **4**, 401-408.
- Carey, M. B. & Zelick, R. (1993). The effect of sound level, temperature and dehydration on the brainstem auditory evoked potential in anuran amphibians. *Hear. Res.*, **70**, 216-228.
- Carranza, A., Castellano, P., Lopez, I. & Honrubia, V. (1994). Gentamicin ototoxicity and hair cell regeneration in the crista ampullaris of *Rana catesbeiana*. *17th Assoc. Res. Otolaryngol. Abst.*, **37**, 137.
- Castellano, S., Rosso, A., Doglio, S. & Giacoma, C. (1999). Body size and calling variation in the green toad (*Bufo viridis*). *J. Zool.*, **248**, 83-90.
- Castellano, S., Giacoma, C. & Dujsebayeva, T. (2000). Morphometric and advertisement call geographic variation in polyploid green toads. *Biol. J. Linn. Soc.*, **70**, 341-360.
- Castellano, S. & Giacoma, C. (1997). The role of female choice in the evolution of the European green toad *Bufo viridis* advertisement call. *Bioacoustics*, **8**, 252.
- Castellano, S. & Giacoma, C. (1998). Stabilizing and directional female choice for male calls in the European green toad. *Anim. Behav.*, **56**, 275-287.
- Castellano, S., Giacoma, C., Dujsebayeva, T., Odierna, G. & Balletto, E. (1998). Morphometrical and acoustical comparison between diploid and tetraploid green toads. *Biol. J. Linn. Soc.*, **63**, 257-281.
- Catz, D. S., Fischer, L. M., Moschella, M. C., Tobias, M. L. & Kelley, D. B. (1992). Sexually dimorphic expression of a laryngeal specific androgen regulated myosin heavy chain gene during *Xenopus laevis* development. *Dev. Biol.*, **154**, 366-376.
- Cherry, M. I. (1993). Sexual selection in the raucous toad, *Bufo rangeri*. *Anim. Behav.*, **45**, 359-373.
- Cherry, M. E. & Grant, W. S. (1994). Phylogenetic relationships and call structure in four African bufonid species. *S. Afr. J. Zool.*, **29**, 1-10.
- Christensen-Dalsgaard, J., Joergensen, M. B. & Kanneworff, M. (1998). Basic response characteristics of auditory nerve fibers in the grassfrog (*Rana temporaria*). *Hear. Res.*, **119**, 155-163.
- Christensen-Dalsgaard, J. & Narins, P. M. (1993). Sound and vibration sensitivity of the VIIIth nerve fibers in the frogs *Leptodactylus albilateralis* and *Rana pipiens pipiens*. *J. Comp. Physiol. A.*, **172**, 653-662.
- Chu, J., Marler, C. A. & Wilczynski, W. (1998). The effects of arginine vasotocin on the calling behavior of male cricket frogs in changing social contexts. *Horm. Behav.*, **34**, 248-261.
- Chu, J., Marler, C. A. & Wilczynski, W. (1992). Arginine vasotocin AVT effects on vocal behavior in cricket frogs *Acris crepitans*. *Soc. Neurosci. Abstr.*, **18**, 894.
- Cocroft, R. B. & Ryan, M. J. (1995). Patterns of advertisement call evolution in toads and chorus frogs. *Anim. Behav.*, **49**, 283-303.
- Dayton, G. H. (2000). *Gastrophryne olivacea* (Narrow-mouthed toad). Vocalization. *Herpetol. Rev.*, **31**, 40.
- Diaz, L. M. & Estrada, A. R. (2000). The male and female vocalizations of the Cuban frog *Eleutherodactylus guanahacabibes* (Anura: Leptodactylidae). *Carib. J. Sci.*, **36**, 328-331.
- Diekamp, B. M. & Gerhardt, H. C. (1993). Midbrain auditory sensitivity in the spring peeper (*Pseudacris crucifer*): correlations with behavioral studies. *J. Comp. Physiol. A.*, **171**, 245-250.
- Diekamp, B. & Gerhardt, H. C. (1995). Selective phonotaxis to advertisement calls in the gray treefrog *Hyla versicolor*: Behavioral experiments and neurophysiological correlates. *J. Comp. Physiol. A.*, **177**, 173-190.
- Dijk, P. van, Wit, H. P. & Segenhout, J. M. (1989). Spontaneous otoacoustic emissions in the European edible frog (*Rana esculenta*): spectral details and temperature dependence. *Hear. Res.*, **42**, 273-282.
- Dobrunz, L. E., Pelletier, D. G. & McMahon, T. A. (1990). Muscle stiffness measured under conditions simulating natural sound production. *Biophys. J.*, **58**, 557-565.
- Docherty, S., Bishop, P. J. & Passmore, N. I. (1995). Calling behavior and male condition in the frog *Hyperolius marmoratus*. *J. Herpetol.*, **29**, 616-618.
- Doty, G. V. & Welch, A. M. (2001). Advertisement call duration indicates good genes for offspring feeding rate in gray tree frogs (*Hyla versicolor*). *Behav. Ecol. Sociobiol.*, **49**, 150-156.
- Driscoll, D. A. (1998). Counts of calling males as estimates of population size in the endangered frogs *Geocrinia alba* and *G. vitellina*. *J. Herpetol.*, **32**, 475-480.
- Dyson, M. L. & Passmore, N. I. (1992). Effect of intermale spacing on female frequency preferences in the painted reed frog. *Copeia*, **1992**, 1111-1114.
- Dyson, M. L., Bush, S. L. & Halliday, T. R. (1998). Phonotaxis by female Majorcan midwife toads, *Alytes muletensis*. *Behaviour*, **135**, 213-230.
- Dyson, M. L., Henzi, S. P. & Passmore, N. I. (1994). The effect of changes in the relative timing of signals

- during female phonotaxis in the reed frog, *Hyperolius marmoratus*. *Anim. Behav.*, **48**, 679-685.
- Edwards, C. J. & Kelley, D. B. (2001). Auditory and lateral line inputs to the midbrain of an aquatic anuran: neuroanatomic studies in *Xenopus laevis*. *J. Comp. Neurol.*, **438**, 148-162.
- Elepfandt, A. (1996). Acoustic communication in shallow water: a field study on the clawed frog *Xenopus laevis*. *Bioacoustics*, **6**, 298-299.
- Elepfandt, A., Eistetter, I., Fleig, A., Guenther, E., Hainich, M., Hepperle, S. & Traub, B. (2000). Hearing threshold and frequency discrimination in the purely aquatic frog *Xenopus laevis laevis* (Pipidae): Measurement by means of conditioning. *J. Exp. Biol.*, **203**, 3621-3629.
- Elepfandt, A. (2002). Examination of underwater hearing and frequency discrimination in the clawed frog *Xenopus laevis laevis*. *Bioacoustics*, **12**, 174-176.
- Emerson, S. B. & Berrigan, D. (1993). Systematics of Southeast Asian ranids: multiple origins of voicelessness in the subgenus *Limnonectes* Fitzinger. *Herpetologica*, **49**, 22-31.
- Emerson, S. B. & Boyd, S. K. (1999). Mating vocalizations of female frogs: Control and evolutionary mechanisms. *Brain Behav. Evol.*, **53**, 187-197.
- Emerson, S. B. & Hess, D. L. (2001). Glucocorticoids, androgens, testis mass, and the energetics of vocalization in breeding male frogs. *Horm. Behav.*, **39**, 59-69.
- Endepols, H. & Walkowiak, W. (2001). Integration of ascending and descending inputs in the auditory midbrain of anurans. *J. Comp. Physiol. A.*, **186**, 1119-1133.
- Fay, R. R. & Popper, A. N., eds. (1999). *Comparative Hearing: Fish and Amphibians*. Springer-Verlag; New York.
- Fay, R. R. & Megela-Simmons, A. M. (1999). The sense of hearing in fishes and amphibians. In *Comparative Hearing: Fish and Amphibians* (R. R. Fay and A. N. Popper, eds.). Springer-Verlag; New York, pp. 269-318.
- Fischer, L., Catz, D. & Kelley, D. (1993). An androgen receptor mRNA isoform associated with hormone induced cell proliferation. *Proc. Natl. Acad. Sci. USA*, **90**, 8254-8258.
- Forester, D. C. & Thompson, K. J. (1998). Gauntlet behaviour as a male sexual tactic in the American toad (*Amphibia: Bufonidae*). *Behaviour*, **135**, 99-119.
- Forester, D. C., Lykens, D. V. & Harrison, W. K. (1988). The significance of persistent vocalisation by the spring peeper, *Pseudacris crucifer* (Anura: Hylidae). *Behaviour*, **108**, 197-208.
- Fox, J. H. (1993). *Augmentation and maximization of per-capita call active space through chorusing in anuran amphibians*. Ph.D. dissertation; University of Texas, Austin, Texas.
- Fox, J. H. (1995). Morphological correlates of auditory sensitivity in anuran amphibians. *Brain Behav. Evol.*, **45**, 327-338.
- Fox, J. H. (1992). Comparisons of call amplitude and auditory sensitivity in anuran amphibians. *Soc. Neurosci. Abstr.*, **18**, 882.
- Franzen, M. & Glaw, F. (1999). Distress call of *Mertensiella luschani finikensis* from Turkey (Amphibia: Salamandridae). *Zool. Middle East*, **19**, 27-32.
- Freedman, E. G., Ferragamo, M. & Simmons, A. M. (1988). Masking patterns in the bullfrog (*Rana catesbeiana*). II. Physiological effects. *J. Acoust. Soc. Am.*, **84**, 2081-2091.
- Frese, P. W. & Sullivan, A. M. (2000). *Rana areolata circulosa* (northern crayfish frog). Vocalization. *Herpetol. Rev.*, **31**, 101.
- Friedl, T. W. P. & Klump, G. M. (2002). The vocal behaviour of male European treefrogs (*Hyla arborea*): implications for inter- and intrasexual selection. *Behaviour*, **139**, 113-136.
- Fritzsch, B. & Wake, M. H. (1988). The inner ear of gymnophione amphibians and its nerve supply: a comparative study of regressive events in a complex sensory system. *Zoomorphol.*, **108**, 210-217.
- Fritzsch, B. & Wahnschaffe, U. (1987). Electron microscopical evidence for common inner ear and lateral-line efferents in urodeles. *Neurosci. Lett.*, **81**, 48-52.
- Fritzsch, B. (1992). The water-to-land transition: Evolution of the tetrapod basilar papilla, middle ear, and auditory nuclei. In *Comparative Evolutionary Biology of Hearing* (D. B. Webster, R. R. Fay & A. N. Popper, eds.). Springer Verlag; New York, pp. 351-376.
- Garcia-Rutledge, E. J. & Narins, P. M. (2001). Shared acoustic resources in an old world frog community. *Herpetologica*, **57**, 104-116.
- Gergus, E. W. A., Sullivan, B. K. & Malmos, K. B. (1997). Call variation in the *Bufo microscaphus* complex: Implications for species boundaries and the evolution of mate recognition. *Ethology*, **103**, 979-989.
- Gerhardt, H. C. (1994). Reproductive character displacement of female mate choice in the gray treefrog, *Hyla chrysoscelis*. *Anim. Behav.*, **47**, 959-969.
- Gerhardt, H. C. (1994). The evolution of vocalization in frogs and toads. *Annu. Rev. Ecol. Syst.*, **25**, 293-324.
- Gerhardt, H. C. (1993). Multiple causation of the evolution of acoustic signals used in courtship. *Etologia*, **3**, 151-169.
- Gerhardt, H. C. & Schul, J. (1999). A quantitative analysis of behavioral selectivity for pulse rise time in the

- gray treefrog, *Hyla versicolor*. *J. Comp. Physiol. A.*, **185**, 33-40.
- Gerhardt, H. C. (1995). Phonotaxis in female frogs and toads: execution and design of experiments. In *Methods in Comparative Psychoacoustics* (G. M. Klump, R. J. Dooling, R. R. Fay & W. C. Stebbins, eds.). Birkhaeuser; Basel, pp. 209-220.
- Gerhardt, H. C., Dyson, M. L. & Tanner, S. D. (1996). Dynamic properties of the advertisement calls of gray tree frogs: patterns of variability and female choice. *Behav. Ecol.*, **7**, 7-18.
- Gerhardt, H. C. (1994). Selective responsiveness to long-range acoustic signals in insects and anurans. *Am. Zool.*, **34**, 706-714.
- Gerhardt, H. C. (1988). Acoustic properties used in call recognition by frogs and toads. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, T. Hetherington, M. Ryan, W. Wilczynski & W. Walkowiak, eds.). John Wiley; New York, pp. 455-483.
- Gerhardt, H. C., Dyson, M. L., Tanner, S. D. & Murphy, C. G. (1994). Female treefrogs do not avoid heterospecific calls as they approach conspecific calls: implications for mechanisms of mate choice. *Anim. Behav.*, **47**, 1323-1332.
- Gerhardt, H. C. & Doherty, J. A. (1988). Acoustic communication in the gray treefrog, *Hyla versicolor*: evolutionary and neurobiological implications. *J. Comp. Physiol.*, **162**, 261-278.
- Gerhardt, H. C. (1999). Reproductive character displacement and other sources of selection on acoustic communication systems. In *The Design of Animal Communication* (M. D. Hauser and M. Konishi, eds.). MIT Press; Cambridge, Massachusetts, pp. 515-534.
- Gerhardt, H. C., Roberts, J. D., Bee, M. A. & Schwartz, J. J. (2000). Call matching in the quacking frog (*Crinia georgiana*). *Behav. Sociobiol.*, **48**, 243-251.
- Gerhardt, H. C., Tanner, S. D., Corrigan, C. M. & Walton, H. C. (2000). Female preferences based on call duration in the gray treefrog (*Hyla versicolor*): influence of relative and absolute duration on preference strength. *Behav. Ecol.*, **11**, 663-669.
- Gerhardt, H. C. & Klump, G. M. (1987). Masking of acoustic signals by the chorus background noise in the green tree frog: a limitation on mate choice. *Anim. Behav.*, **36**, 1247-1249.
- Gerhardt, H. C. & Watson, G. F. (1995). Within-male variability in call properties and female preference in the grey treefrog. *Anim. Behav.*, **50**, 1187-1191.
- Giacoma, C., Zugolaro, C. & Beani, L. (1997). The advertisement calls of the green toad (*Bufo viridis*): variability and role in mate choice. *Herpetologica*, **53**, 454-464.
- Girgenrath, M. & Marsh, R. L. (1999). Power output of sound producing muscles in the tree frogs *Hyla versicolor* and *Hyla chrysoscelis*. *J. Exp. Biol.*, **202**, 3225-3238.
- Given, M. F. & McKay, D. M. (1990). Variation in citrate synthase activity in calling muscles of carpenter frogs, *Rana virgatipes*. *Copeia*, **1990**, 863-867.
- Given, M. F. (1993). Vocal interactions in *Bufo woodhousii fowleri*. *J. Herpetol.*, **27**, 447-452.
- Given, M. F. (1996). Intensity modulation of advertisement calls in *Bufo woodhousii fowleri*. *Copeia*, **1996**, 970-977.
- Given, M. F. (1993). Male response to female vocalizations in the carpenter frog, *Rana virgatipes*. *Anim. Behav.*, **46**, 1139-1149.
- Given, M. F. (1988). Growth rate and the cost of calling activity in male carpenter frogs, *Rana virgatipes*. *Behav. Ecol. Sociobiol.*, **22**, 153-160.
- Given, M. F. (1999). Frequency alteration of the advertisement call in the carpenter frog, *Rana virgatipes*. *Herpetologica*, **55**, 304-317.
- Grafe, T. U. (2001). Acoustic interactions among chorusing male anurans. *Adv. Ethol.*, **36**, 94.
- Grafe, T. U. & Thein, J. (2001). Energetics of calling and metabolic substrate use during prolonged exercise in the European treefrog *Hyla arborea*. *J. Comp. Physiol. B.*, 69-76.
- Grafe, T. U. (1997). Use of metabolic substrates in the gray treefrog *Hyla versicolor*: implications for calling behavior. *Copeia*, **1997**, 356-362.
- Grafe, T. U. (1996). The function of call alternation in the African reed frog (*Hyperolius marmoratus*): precise call timing prevents auditory masking. *Behav. Ecol. Sociobiol.*, **38**, 149-158.
- Grafe, T. U. (1995). Graded aggressive calls in the African painted reed frog *Hyperolius marmoratus* (Hyperoliidae). *Ethology*, **101**, 67-81.
- Grant, T., Bolivar-G., W. & Castro, F. (1998). The advertisement call of *Centrolene geckoideum*. *J. Herpetol.*, **32**, 452-455.
- Green, A. J. (1990). Determinants of chorus participation and the effects of size, weight and competition on advertisement calling in the tungara frog, *Physalaemus pustulosus* (Leptodactylidae). *Anim. Behav.*, **39**, 620-638.
- Greene, A. J. (1990). Determinants of chorus participation and the effects of size, weight, and competition on advertisement calling in the tungara frog, *Physalaemus pustulosus* (Leptodactylidae). *Anim. Behav.*, **39**, 620-638.

- Greenfield, M. D. & Rand, A. S. (2000). Frogs have rules: Selective attention algorithms regulate chorusing in *Physalaemus pustulosus* (Leptodactylidae). *Ethology*, **106**, 331-347.
- Greenfield, M. D. (1994). Synchronous and alternating choruses in insects and anurans: common mechanisms and diverse functions. *Am. Zool.*, **34**, 605-615.
- Guenther, R. & Ploetner, J. (1994). Morphometric, enzymological and bioacoustic studies in Italian water frogs (Amphibia, Ranidae). *Zoologica Poloniae*, **39**, 387-415.
- Guenther, R. & Ploetner, J. (1995). Morphometric, enzymological and bioacoustic studies in Italian water frogs (Amphibia, Ranidae). *Zoologica Poloniae*, **39**, 387-415.
- Haddad, C. F. B. & Giaretta, A. A. (1999). Visual and acoustic communication in the Brazilian torrent frog, *Hylodes asper* (Anura: Leptodactylidae). *Herpetologica*, **55**, 324-333.
- Hainfeld, C. A., Boatright-Horowitz, S. L., Boatright-Horowitz, S. S. & Simmons, A. M. (1996). Discrimination of phase spectra in complex sounds by the bullfrog, *Rana catesbeiana*. *J. Comp. Physiol. A.*, **179**, 75-87.
- Hall, J. C. (1994). Central processing of communication sounds in the anuran auditory system. *Am. Zool.*, **34**, 670-684.
- Hasegawa, Y., Ueda, H. & Sumida, M. (1999). Clinal geographic variation in the advertisement call of the wrinkled frog, *Rana rugosa*. *Herpetologica*, **55**, 318-323.
- Hayes, T. B. & Menendez, K. P. (1999). The effect of sex steroids on primary and secondary sex differentiation in the sexually dichromatic reedfrog (*Hyperolius argus*: Hyperolidae) from the Arabuko Sokoke Forest of Kenya. *Gen. Comp. Endocrinol.*, **115**, 188-199.
- Hellmann, B. & Fritzsch, B. (1996). Neuroanatomical and histochemical evidence for the presence of common lateral line and inner ear efferents and of efferents to the basilar papilla in a frog, *Xenopus laevis*. *Brain Behav. Evol.*, **47**, 185-194.
- Hetherington, T. E. (1989). Effect of the amphibian opercularis muscle on auditory responses. *Trends Vert. Morphol.*, **35**, 356-359.
- Hetherington, T. E. (1992). The effects of body size on the evolution of the amphibian middle ear. In *The Evolutionary Biology of Hearing* (A. Popper, D. Webster & R. Fay, eds.). Springer-Verlag; New York, pp. 421-437.
- Hetherington, T. E. (1994). The middle ear muscle of frogs does not modulate tympanic responses to sound. *J. Acoust. Soc. Am.*, **95**, 2122-2125.
- Hetherington, T. E. (1994). Sexual differences in the tympanic frequency responses of the American bullfrog (*Rana catesbeiana*). *J. Acoust. Soc. Am.*, **96**, 1186-1188.
- Hetherington, T. E. & Lindquist, E. D. (1999). Lung-based hearing in an "earless" anuran amphibian. *J. Comp. Physiol. A.*, **184**, 395-401.
- Hetherington, T. E. (1991). The effects of body size on the evolution of the amphibian middle ear. In *The Evolutionary Biology of Hearing* (D. B. Webster, R. R. Fay & A. N. Popper, eds.). Springer Verlag; New York, pp. 421-437.
- Heuwinkel, H. & Buenten, G. (1996). Hydroacoustical investigations on the frog *Pipa carvalhoi*. *Bioacoustics*, **6**, 317.
- Heyer, W. R. & Morales, V. R. (1995). The advertisement call of the leptodactylid frog *Leptodactylus griseigularis*. *Amphib-Reptilia*, **16**, 91-92.
- Heyer, W. R., Garcia-Lopez, J. M. & Cardoso, A. J. (1996). Advertisement call variation in the *Leptodactylus mystaceus* species complex (Amphibia: Leptodactylidae) with a description of a new sibling species. *Amphib-Reptilia*, **1996**, 7-31.
- Hoeglund, J. & Robertson, J. G. M. (1988). Chorusing behaviour, a density-dependent alternative mating strategy in male common toads (*Bufo bufo*). *Ethology*, **79**, 324-332.
- Hollis, D. M. (1996). Acoustic relationships of the California toad, *Bufo boreas halophilus* and the Yosemite toad, *Bufo canorus*: Vocalization and its role in natural hybridization. *Am. Zool.*, **36**, 93A.
- Howard, R. D. & Young, J. R. (1998). Individual variation in male vocal traits and female mating preferences in *Bufo americanus*. *Anim. Behav.*, **55**, 1165-1179.
- Howard, R. D. & Palmer, J. G. (1995). Female choice in *Bufo americanus*: effects of dominant frequency and call order. *Copeia*, **1995**, 212-217.
- Hutchinson, J. M. C., McNamara, J. M. & Cuthill, I. C. (1993). Song, sexual selection, starvation and strategic handicaps. *Anim. Behav.*, **45**, 1153-1177.
- Ibanez, R. (1993). Female phonotaxis and call overlap in the Neotropical glass frog *Centrolenella granulosa*. *Copeia*, **1993**, 846-850.
- Jaslow, A. P., Hetherington, T. E. & Lombard, R. E. (1988). Structure and function of the amphibian middle ear. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, M. Ryan, W. Wilczynski, T. E. Hetherington & W. Walkowiak, eds.). Wiley & Sons; New York, pp. 69-91.
- Jaslow, A. P. & Lombard, R. E. (1996). Hearing in the neotropical frog, *Atelopus chiriquiensis*. *Copeia*, **1996**,

- Jehle, R. & Arak, A. (1998). Graded call variation in the Asian cricket frog *Rana nicobariensis*. *Bioacoustics*, **9**, 35-48.
- Jennions, M. D. & Backwell, P. R. Y. (1992). Chorus size influences on the anti-predator response of a Neotropical frog. *Anim. Behav.*, **44**, 990-992.
- Jennions, M. D., Bishop, P. J., Backwell, P. R. Y. & Passmore, N. I. (1995). Call rate variability and female choice in the African frog, *Hyperolius marmoratus*. *Behaviour*, **132**, 709-720.
- Jesu, R. & Schimmenti, G. (1997). First recording of the mating call of a burrowing frog from western Madagascar, *Scaphiophryne brevis* (Boulenger, 1896) (Anura: Microhylidae). *Bioacoustics*, **8**, 252-253.
- Joergensen, M. B. & Christensen-Dalsgaard, J. (1997). Directionality of auditory nerve fiber responses to pure tone stimuli in the grassfrog, *Rana temporaria*. II. Spike timing. *J. Comp. Physiol. A.*, **180**, 503-511.
- Joergensen, M. B., Schmitz, B. & Christensen-Dalsgaard, J. (1991). Biophysics of directional hearing in the frog *Eleutherodactylus coqui*. *J. Comp. Physiol. A.*, **168**, 223-232.
- Joergensen, M. B. & Kannevorff, M. (1997). Middle-ear transmission in the grass frog, *Rana temporaria*. *J. Comp. Physiol. A.*, **182**, 59-64.
- Joergensen, M. B. (1991). Comparative studies of the biophysics of directional hearing in anurans. *J. Comp. Physiol. A.*, **169**, 591-598.
- Joergensen, M. B. & Christensen-Dalsgaard, J. (1997). Derectionality of auditory nerve fiber responses to pure tone stimuli in the grassfrog, *Rana temporaria*. I. Spike rate responses. *J. Comp. Physiol. A.*, **180**, 493-502.
- Judge, K. A. & Brooks, R. J. (2001). Chorus participation by male bullfrogs, *Rana catesbeiana*: a test of the energetic constraint hypothesis. *Anim. Behav.*, **62**, 849-861.
- Judge, K. A., Swanson, S. J. & Brooks, R. J. (2000). *Rana catesbeiana* (bullfrog). Female vocalization. *Herpetol. Rev.*, **31**, 236-237.
- Kadadevaru, G. G., Kanamadi, R. D. & Schneider, H. (2000). Advertisement call of two Indian ranids, *Indiran beddomii* and *Tomopterna rufescens*. *Amphibia-Reptilia*, **21**, 242-246.
- Kanamadi, R. D. & Hiremath, C. R. (1990). Vocalization and breeding period in the burrowing frog *Tomopterna breviceps*. *Environ. Ecol.*, **8**, 1055-1056.
- Kanamadi, R. D., Kadadevaru, G. G. & Schneider, H. (2001). Calling behaviour, bioacoustics and distribution of a rhacophorid frog, *Philautus variabilis* (Gunther, 1858). *Amphibia-Reptilia*, **22**, 365-372.
- Kanamadi, R. D., Hiremath, C. R. & Schneider, H. (1994). Advertisement calls of two anuran amphibians, *Rana tigrina* and *Tomopterna breviceps*. *J. Biosci.*, **19**, 75-80.
- Kanamadi, R. D. (1996). Acoustic communication in some Indian anurans: A review. *Zoos' Print*, **11**, 26-35.
- Kanamadi, R. D., Schneider, H., Hiremath, C. R. & Jirankali, C. S. (1993). Vocalization of the tree frog *Polypedates maculatus* (Rhacophoridae). *J. Biosci.* (Bangalore), **18**, 239-245.
- Kanamadi, R. D., Hiremath, C. R. & Schneider, H. (1993). The advertisement call of the South Indian frog *Ramanella variegata* (Microhylidae). *J. Herpetol.*, **27**, 218-219.
- Kasuya, E. & Shiobara, S. (1996). Variation in the advertisement call in the foam-nesting treefrog *Rhacophorus arboreus*. *Bioacoustics*, **7**, 1-11.
- Kasuya, E., Kobayashi, T., Ootaki, M., Oota, N. & Takada, A. (1997). Female preference for temporal features of vocalization in the Japanese treefrog, *Rhacophorus arboreus*. *J. Ethol.*, **15**, 103-108.
- Kaya, U. (2002). Responses to synthetic advertisement calls by lake frogs from western Anatolia. *Zool. Middl. East*, **25**, 27-35.
- Kaya, U. & Simmons, A. M. (1999). Advertisement calls of the tree frogs, *Hyla arborea* and *Hyla savignyi* (Anura: Hylidae) in Turkey. *Bioacoustics*, **10**, 175-190.
- Keddy-Hector, A., Wilczynski, W. & Ryan, M. J. (1993). Call patterns and basilar papilla tuning in cricket frogs. II. Intrapopulational variation and allometry. *Brain Behav. Evol.*, **39**, 238-246.
- Kelley, D. B. (1997). Generating sexually differentiated songs. *Curr. Opin. Neurobiol.*, **7**, 839-843.
- Kelley, D. B. & Dennison, J. (1990). The vocal motor neurons of *Xenopus laevis*: development of sex differences in axon number. *J. Neurobiol.*, **21**, 869-882.
- Kelley, D. B. & Tobias, M. L. (1999). Vocal communication in *Xenopus laevis*. In *The Design of Animal Communication* (M. D. Hauser and M. Konishi, eds.). The MIT Press, Cambridge, Massachusetts, pp. 9-35.
- Kelley, D. B. (1992). Opening and closing a hormone regulated period for the development of courtship song: a cellular and molecular analysis of vocal neuroeffectors. *Ann. New York Acad. Sci.*, **662**, 178-188.
- Kime, N. M., Rand, A. S., Kapfer, M. & Ryan, M. J. (1998). Consistency of female choice in the tungara frog: a permissive preference for complex characters. *Anim. Behav.*, **55**, 641-649.
- Klomberg, K. F. & Marler, C. A. (2000). The neuropeptide arginine vasotocin alters male call characteristics involved in social interactions in the grey treefrog, *Hyla versicolor*. *Anim. Behav.*, **59**, 807-812.

- Klump, G. M. (1996). Studying sound localization in frogs with behavioral methods. In *Methods in Comparative Psychoacoustics* (G. M. Klump, R. J. Dooling, R. R. Fay and W. C. Stebbins, eds.). Birkhaeuser Verlag; Basel, pp 221-233.
- Klump, G. M. & Gerhardt, H. C. (1992). Mechanisms and function of call-timing in male-male interactions in frogs. In *Playback and Studies of Animal Communication* (P. K. McGregor, ed.). Plenum Press; New York, 153-174.
- Klump, G. & Gerhardt, H. C. (1992). Mechanisms and function of call-timing in male-male interactions in frogs. In *Playback Studies of Animal Communication* (P. K. McGregor, ed.). Plenum Press; New York, pp. 153-174.
- Lance, S. L. & Wells, K. D. (1993). Are spring peeper satellite males physiologically inferior to calling males? *Copeia*, **1993**, 1162-1166.
- Lea, J., Dyson, M. & Halliday, T. (2001). Calling by male midwife toads stimulates females to maintain reproductive condition. *Anim. Behav.*, **61**, 373-377.
- Lea, J., Halliday, T. & Dyson, M. (2000). Reproductive stage and history affect the phonotactic preferences of female midwife toads, *Alytes muletensis*. *Anim. Behav.*, **60**, 423-427.
- Leary, C. J. & Razafindratsita, V. R. (1998). Attempted predation on a hylid frog, *Phrynohyas venulosa*, by an indigo snake, *Drymarchon corais*, and the response of conspecific frogs to distress calls. *Amphibia-Reptilia*, **19**, 442-446.
- Leary, C. J. (1999). Comparison between release vocalizations emitted during artificial and conspecific amplexus in *Bufo americanus*. *Copeia*, **1999**, 506-508.
- Leary, C. J. (2001). Evidence for convergent character displacement in release vocalizations of *Bufo fowleri* and *Bufo terrestris* (Anura; Bufonidae). *Anim. Behav.*, **61**, 431-438.
- Leary, C. J. (2001). Investigating opposing patterns of character displacement in release and advertisement vocalizations of *Bufo fowleri* and *Bufo americanus* (Anura; Bufonidae). *Can. J. Zool.*, **79**, 1577-1585.
- Levering, K. R., Nemec, J. & Karasov, W. H. (2001). The impact of PCB 153 on male advertisement calling in *Rana pipiens*. *Ecol. Soc. Am. Ann. Meet. Abstr.*, **86**, 140-141.
- Lewis, E. R., Narins, P. M., Cortopassi, K. A., Yamada, W. M., Poinar, E. H., Moore, S. W. & Xu, X. (2001). Do male white-lipped frogs use seismic signals for intraspecific communication? *Am. Zool.*, **41**, 1185-1199.
- Lindquist, E. D., Hetherington, T. E. & Volman, S. F. (1998). Biomechanical and neurophysiological studies on audition in eared and earless harlequin frogs (*Atelopus*). *J. Comp. Physiol. A.*, **183**, 265-271.
- Lindquist, E. D. & Hetherington, T. E. (1996). Field studies on visual and acoustic signaling in the "earless" Panamanian golden frog, *Atelopus zeteki*. *J. Herpetol.*, **30**, 347-354.
- Littlejohn, M. J., Watson, G. F. & Wright, J. R. (1993). Structure of advertisement call of *Litoria ewingi* (Anura, Hylidae) introduced into New Zealand from Tasmania. *Copeia*, **1993**, 60-67.
- Littlejohn, M. J. (1988). Frog calls and speciation: the retrograde evolution of homogamic acoustic signaling systems in hybrid zones. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, M. J. Ryan, W. Wilczynski, T. E. Hetherington & W. Walkowiak, eds.). John Wiley & Sons; New York, pp. 613-636.
- Littlejohn, M. J. (1998). Historical aspects of recording and analysis in anuran bioacoustics: 1954-1997. *Bioacoustics*, **9**, 69-80.
- Lode, T. & Pagano, A. (2000). Variations in call and morphology in male water frogs: taxonomic and evolutionary implications. *Compt. Rend. Acad. Sci. III, Sci. Vie*, **323**, 995-1001.
- Lode, T. (2001). Character convergence in advertisement call and mate choice in two genetically distinct water frog hybridogenetic lineages (*Rana kl esculenta*, *Rana kl grafi*). *J. Zool. Syst. Evol. Res.*, **39**, 91-96.
- Lucas, J. R., Howard, R. D. & Palmer, J. G. (1996). Callers and satellites: chorus behaviour in anurans as a stochastic dynamic game. *Anim. Behav.*, **51**, 501-518.
- Luddecke, H., Amezquita, A., Bernal, X. & Guzman, F. (2000). Partitioning of vocal activity in a Neotropical highland frog community. *Stud. Neotrop. Fauna Envir.*, **35**, 185-194.
- Malkmus, R. & Riede, K. (1996). Bioacoustic data on *Megophrys baluensis* (Boulenger, 1899) and *Kalophrynyus baluensis* Kiew, 1984, two rare frog species from Borneo (Anura: Pelobatidae, Microhylidae). *Herpetozoa*, **9**, 151-155 (German).
- Malkmus, R. (1995). Who calls here: Frog or cricket? *Sauria*, Berlin, **17**, 35-38 (German).
- Malkmus, R. & Riede, K. (1996). The tree frogs of the genus *Philautus* from Mount Kinabalu. Part I: Overview and the *aurifasciatus*-group with description of a new species (*Philautus saueri* sp. n.). *Sauria*, Berlin, **18(1)**, 27-37 (German).
- Malkmus, R. & Riede, K. (1996). The tree frogs of the genus *Philautus* from Mount Kinabalu. Part II: The *vermiculatus*-group with description of a new subspecies (*Philautus aurantium gunungensis* n. ssp.) and the *hosei*-group. *Sauria*, Berlin, **18(2)**, 21-28 (German).
- Malkmus, R. (1996). Observations on call activity of some frog species at Mount Kinabalu/northern Borneo.

- Herpetofauna*, Weinstadt, **18**, 20-26 (German).
- Malmos, K. B., Sullivan, B. K. & Lamb, T. (2001). Calling behavior and directional hybridization between two toads (*Bufo microscaphus* x *B. woodhousii*) in Arizona. *Evolution*, **55**, 626-630.
- Malmos, K. B. (1992). *Morphology, mating calls, and allozymes of Bufo a. americanus and Bufo w. woodhousii from a hybrid zone in eastern Nebraska and western Iowa*. Master's thesis. University of Nebraska; Omaha.
- Marler, C. A., Chu, J. & Wilczynski, W. (1995). Arginine vasotocin injection increases probability of calling in cricket frogs, but causes call changes characteristic of less aggressive males. *Horm. Behav.*, **29**, 554-570.
- Marler, C. A. & Ryan, M. J. (1996). Energetic constraints and steroid hormone correlates of male calling behaviour in the tungara frog. *J. Zool.*, **240**, 397-409.
- Marquez, R., de la Riva, I. & Bosch, J. (1995). Advertisement calls of Bolivian Leptodactylidae (Amphibia, Anura). *J. Zool.*, **237**, 313-336.
- Marquez, R. & Bosch, J. (1995). Advertisement calls of the midwife toads *Alytes* (Amphibia, Anura, Discoglossidae) in continental Spain. *Z. Zool. Syst. Evol.-Forsch.*, **33**, 185-192.
- Marquez, R., Delariva, I. & Bosch, J. (1993). Advertisement calls of Bolivian species of *Hyla* (Amphibia, Anura, Hylidae). *Biotropica*, **25**, 426-443.
- Marquez, R. & Bosch, J. (1996). Advertisement call of the midwife toad from the Sierras Beticas *Alytes dickhillenii* Arntzen & Garcia-Paris, 1995 (Amphibia, Anura, Discoglossidae). *J. Herpetol.*, **6**, 9-14.
- Marquez, R. & Bosch, J. (1997). Male advertisement call and female preference in sympatric and allopatric midwife toads. *Anim. Behav.*, **54**, 1333-1345.
- Marquez, R., Pargana, J. M. & Crespo, E. G. (2001). Acoustic competition in male *Pelodytes ibericus* (Anura: Pelodytidae): Interactive playback tests. *Copeia*, **2001**, 1142-1150.
- Marquez, R. & Bosch, J. (1997). Female preference in complex acoustical environments in the midwife toads *Alytes obstetricans* and *Alytes cisternasi*. *Behav. Ecol.*, **8**, 588-594.
- Marquez, R. (1995). Female choice in the midwife toads (*Alytes obstetricans* and *A. cisternasi*). *Behaviour*, **132**, 152-161.
- Marsh, R. L. (1999). Contractile properties of muscles used in sound production and locomotion in two species of gray tree frog. *J. Exp. Biol.*, **202**, 3215-3223.
- Matsue, M. (1995). Calls produced by a "voiceless" frog, *Rana blythi* Boulenger 1920, from Peninsular Malaysia (Amphibia Anura). *Tropical Zool.*, **2**, 325-331.
- Matsui, M., Yong, H.-S., Araya, K. & Hamid, A. A. (1996). Acoustic characteristics and systematic relationships of arboreal microhylid frogs of the genus *Metaphrynella* from Malaysia. *J. Herpetol.*, **30**, 424-427.
- Matsui, M. & Wu, G.-F. (1994). Acoustic characteristics of treefrogs from Sichuan, China, with comments on systematic relationship of *Polypedates* and *Rhacophorus* (Anura, Rhacophoridae). *Zool. Sci.*, **11**, 485-490.
- Matsui, M., Chan-Ard, T. & Nabitabhata, J. (1996). Distinct specific status of *Kalophrynus pleurostigma interlineatus* (Anura, Microhylidae). *Copeia*, **1996**, 440-445.
- Matsui, M. (1997). Call characteristics of Malaysian *Leptolalax* with a description of two new species (Anura: Pelobatidae). *Copeia*, **1997**, 158-165.
- Matsui, M. (1995). Calls produced by a "voiceless" frog, *Rana blythi* Boulenger 1920, from Peninsular Malaysia (Amphibia Anura). *Tropical Zool.*, **8**, 325-331.
- Matsui, M., Wu, G. F. & Yong, H. S. (1993). Acoustic characteristics of three species of the genus *Amolops* (Amphibia, Anura, Ranidae). *Zool. Sci.*, **10**, 691-695.
- McClelland, E. & Wilczynski, W. (1992). Central and peripheral sex dimorphisms in male and female cricket frogs *Acris crepitans*. *Soc. Neurosci. Abstr.*, **18**, 882.
- McClelland, B. E., Wilczynski, W. & Ryan, M. J. (1997). Intraspecific variation in laryngeal and ear morphology in male cricket frogs (*Acris crepitans*). *Biol. J. Linn. Soc.*, **63**, 51-67.
- McClelland, B. E., Wilczynski, W. & Rand, A. S. (1997). Sexual dimorphism and species differences in the neurophysiology and morphology of the acoustic communication system of two neotropical hylids. *J. Comp. Physiol. A.*, **180**, 451-462.
- McCormick, C. A. (1992). Evolution of central auditory pathways in anamniotes. In *The Evolutionary Biology of Hearing* (D. Webster, R. Fay & A. Popper, eds.). Springer; New York.
- McKeon, C. S. & Baggallay, T. A. d. (2001). Anura: *Atelopus tricolor* (Three-colored subfoot toad). Nocturnal calling. *Herpetol. Rev.*, **32**, 247.
- McLister, J. D. (2001). Physical factors affecting the cost and efficiency of sound production in the treefrog *Hyla versicolor*. *J. Exp. Biol.*, **204**, 69-80.
- McLister, J. D. (1996). Call energetics and the evolution of mating calls within the grey treefrog complex. *Am. Zool.*, **36**, 94A.
- McLister, J. D. & Bogart, J. P. (1995). Laryngeal morphology and the evolution of mating calls in the gray

- treefrog complex. *Am. Zool.*, **35**, 16A.
- Michael, S. F. (1996). Courtship calls of three species of *Eleutherodactylus* from Puerto Rico (Anura: Leptodactylidae). *Herpetologica*, **52**, 116-120.
- Mohr, S. & Schneider, H. (1993). Analysis of the call pacemaker of the Chinese fire-bellied toad, *Bombina orientalis* (Boulenger, 1890) (Amphibia, Anura), and its operation during auditory stimulation. *Zool. Jahrb. Abt. Allg. Zool. Physiol. Tiere*, **97**, 215-231.
- Moraels, V. R. & Chandler, M. (1992). First record of *Pseudis paradoxa* (Anura, Pseudidae) in Peru with notes on its distress call and habitat. *Caribb. J. Sci.*, **28**, 224-226.
- Murphy, C. G. (1994). The determinants of chorus tenure in barking treefrogs (*Hyla gratiosa*). *Behav. Ecol. Sociobiol.*, **34**, 285-294.
- Murphy, C. G. (1999). Nightly timing of chorusing by male barking treefrogs (*Hyla gratiosa*): The influence of female arrival and energy. *Copeia*, **1999**, 333-347.
- Murphy, C. G. & Gerhardt, H. C. (1996). Evaluating the design of mate-choice experiments: the effect of amplexus on mate choice by female barking treefrogs, *Hyla gratiosa*. *Anim. Behav.*, **51**, 881-890.
- Murphy, C. G. (1994). Chorus tenure of male barking treefrogs, *Hyla gratiosa*. *Anim. Behav.*, **48**, 763-777.
- Narins, P. M. (1992). Evolution of anuran chorus behavior: Neural and behavioral constraints. *Am. Natur.*, **139**, 90-104.
- Narins, P. M. (1995). Frog communication. *Sci. Am.*, **Aug.**, 62-67.
- Narins, P. M., Benedix, J. H. & Moss, F. (1997). Does stochastic resonance play a role in hearing? In *Diversity in Auditory Mechanisms* (E. R. Lewis, G. R. Long, R. F. Lyons, P. M. Narins and C. R. Steele, eds.). World Scientific; Singapore, pp. 83-90.
- Narins, P. M., Ehret, G. & Tautz, J. (1988). Accessory pathway for sound transfer in a neotropical frog. *Proc. Natl. Acad. Sci. USA*, **85**, 1508-1512.
- Narins, P. M. (1992). Biological constraints on anuran acoustic communication: auditory capabilities of naturally behaving animals. In *The Evolutionary Biology of Hearing* (D. B. Webster, R. R. Fay and A. N. Popper, eds.). Springer; Berlin, pp. 439-454.
- Narins, P. M., Lewis, E. R. & McClelland, B. E. (2000). Hyperextended call note repertoire of the endemic Madagascar treefrog *Boophis madagascariensis* (Rhacophoridae). *J. Zool.*, **250**, 283-298.
- Narins, P. M. & Zelick, R. (1988). The effects of noise on auditory processing and behavior in amphibians. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, W. Wilczynski, M. J. Ryan, T. Hetherington & W. Walkowiak, eds.). Wiley; New York, pp. 511-536.
- Narins, P. M., Lewis, E. R., Purgue, A. P., Bishop, P. J., Minter, L. R. & Lawson, D. P. (2001). Functional consequences of a novel middle ear adaptation in the central African frog *Petropedetes parkeri* (Ranidae). *J. Exp. Biol.*, **204**, 1223-1232.
- Navas, C. A. & Bevier, C. R. (2001). Thermal dependency of calling performance in the eurythermic frog *Colostethus subpunctatus*. *Herpetologica*, **57**, 384-395.
- Navas, C. A. (1996). The effect of temperature on the vocal activity of tropical anurans: A comparison of high and low-elevation species. *J. Herpetol.*, **30**, 488-497.
- Navas, C. A. (1996). Thermal dependency of field locomotor and vocal performance of high-elevation anurans in the tropical Andes. *J. Herpetol.*, **30**, 478-487.
- Osborne, W. S. & McElhinney, N. A. (1996). Status, habitat and preliminary observations on calling of the green and golden frog *Litoria aurea* on Bowen Island, Jervis Bay National Park. *Aust. Zool.*, **30**, 218-223.
- Ovaska, K. E. & Caldbeck, J. (1997). Vocal behaviour of the frog *Eleutherodactylus antillensis* on the British Virgin Islands. *Anim. Behav.*, **54**, 181-188.
- Ovaska, K. E. & Caldbeck, J. (1999). Courtship call of the frog *Eleutherodactylus schwartzi* from the British Virgin Islands. *J. Herpetol.*, **33**, 501-503.
- Ovaska, K. & Caldbeck, J. (1997). Courtship behavior and vocalizations of the frogs *Eleutherodactylus antillensis* and *cochranae* on the British Virgin Islands. *J. Herpetol.*, **33**, 149-155.
- Owen, P. C. & Perrill, S. A. (2000). Habituation and neighbor-stranger discrimination in green frogs: a reply to Bee and Schachtman. *Behav. Ecol. Sociobiol.*, **48**, 169-171.
- Paez, V. P., Bock, B. C. & Rand, A. S. (1993). Inhibition of evoked calling of *Dendrobates pumilio* due to acoustic interference from cicada calling. *Biotropica*, **25**, 242-245.
- Palis, J. G. (2000). *Rana sphenocephala* (southern leopard frog). Subterranean vocalization. *Herpetol. Rev.*, **31**, 42.
- Penna, M. (1997). Selectivity of evoked vocal responses in the time domain by frogs *Batrachyla* (Leptodactylidae). *J. Herpetol.*, **31**, 202-217.
- Penna, M. & Solis, R. (1996). Influence of burrow acoustics on sound reception by frogs *Eupsophus* (Leptodactylidae). *Anim. Behav.*, **51**, 255-263.
- Penna, M. & Solis, R. (1998). Frog call intensities and sound propagation in the South American temperate forest region. *Behav. Ecol. Sociobiol.*, **42**, 371-381.

- Penna, M., Feng, A. S. & Narins, P. M. (1997). Temporal selectivity of evoked vocal responses of *Batrachyla antartandica* (Amphibia, Leptodactylidae). *Anim. Behav.*, **54**, 833-848.
- Penna, M., Lin, W.-Y. & Feng, A. S. (1997). Temporal selectivity for complex signals by single neurons in the torus semicircularis of *Pleurodema thaul* (Amphibia-Leptodactylidae). *J. Comp. Physiol. A.*, **180**, 313-328.
- Penna, M. & Solis, R. (1999). Extent and variation of sound enhancement inside burrows of the frog *Eupsophus emiliopugini* (Leptodactylidae). *Behav. Ecol. Sociobiol.*, **47**, 94-103.
- Penna, M. (1997). Sound reception by burrowing frogs *Eupsophus* (Leptodactylidae). *Adv. Ethol.*, **32**, 119.
- Perez, J., Cohen, M. A. & Kelley, D. B. (1996). Androgen receptor mRNA expression in *Xenopus laevis* CNS: Sexual dimorphism and regulation in laryngeal motor nucleus. *J. Neurobiol.*, **30**, 556-568.
- Perez, L. G. & Heyer, W. R. (1993). Description of the advertisement call and resolution of the systematic status of *Leptodactylus gracilis delattini* Muller 1968 (Amphibia, Leptodactylidae). *Proc. Biol. Soc. Wash.*, **106**, 51-56.
- Perrill, S. A. (1988). Does the female northern cricket frog (*Acrida crepitans*) discriminate male advertisement calls based on frequency (pitch) differences? *Indiana Acad. Sci.*, **98**, 172.
- Perrill, S. A. & Lower, L. C. (1994). Advertisement call discrimination by female cricket frogs. *J. Herpetol.*, **28**, 399-400.
- Phelps, S. M. & Ryan, M. J. (2000). History influences signal recognition: neural network models of tungara frogs. *Proc. Roy. Soc. Lond. B.*, **267**, 1633-1639.
- Platz, J. E. (1993). *Rana subaquavocalis*: a remarkable new species of leopard frog (*Rana pipiens* complex) from southeastern Arizona that calls under water. *J. Herpetol.*, **27**, 154-162.
- Prestwich, K. N. (1994). The energetics of acoustic signalling in anurans and insects. *Am. Zool.*, **34**, 625-643.
- Purgue, A. P. & Narins, P. M. (2000). A model for energy flow in the inner ear of the bullfrog (*Rana catesbeiana*). *J. Comp. Physiol. A.*, **186**, 489-495.
- Purgue, A. (1997). Tympanic sound radiation in the bullfrog *Rana catesbeiana*. *J. Comp. Physiol. A.*, **181**, 438-445.
- Purgue, A. P. & Narins, P. M. (2000). Mechanics of the inner ear of the bullfrog (*Rana catesbeiana*): the contact membranes and the periotic canal. *J. Comp. Physiol. A.*, **186**, 481-488.
- Rand, A. S. & Dudley, R. (1993). Frogs in helium: the anuran vocal sac is not a cavity resonator. *Physiol. Zool.*, **66**, 793-806.
- Rand, A. S. (1988). An overview of anuran acoustic communication. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, M. Ryan, W. Wilczynski, T. Hetherington & W. Walkowiak, eds.). Wiley; New York, pp. 415-431.
- Rand, A. S. (1997). Frog choruses as leks. *Adv. Ethol.*, **32**, 42.
- Resetarits, W. J. & Wilbur, H. M. (1991). Calling site choice by *Hyla chrysoscelis*: effect of predators, competitors, and oviposition sites. *Ecology*, **72**, 778-786.
- Ressel, S. J. (2001). Ultrastructural design of anuran muscles used for call production in relation to the thermal environment of a species. *J. Exp. Biol.*, **204**, 1445-1457.
- Riede, K. (1997). Bioacoustic diversity and resource partitioning in tropical calling communities. In *Tropical Biodiversity and Systematics* (H. Ulrich, ed.). Zoologisches Forschungsinstitut und Museum Alexander Koenig; Bonn, pp. 275-280.
- Riva, I. de la, Marquez, R. & Bosch, J. (1995). Advertisement calls of eight Bolivian hylids (Amphibia, Anura). *J. Herpetol.*, **29**, 113-118.
- Riva, I. de la, Marquez, R. & Bosch, J. (1996). Advertisement calls of four microhylid frogs from Bolivia (Amphibia, Anura). *Am. Midl. Nat.*, **136**, 418-422.
- Riva, I. de la, Marquez, R. & Bosch, J. (1996). The advertisement calls of three South American poison frogs (Amphibia: Anura: Dendrobatidae), with comments on their taxonomy and distribution. *J. Nat. Hist.*, **30**, 1413-1420.
- Roberts, J. D. & Wardell-Johnson, G. (1995). Call differences between peripheral isolates of the *Geocrinia rosea* complex (Anura: Myobatrachidae) in Southwestern Australia. *Copeia*, **1995**, 899-906.
- Roberts, J. D. (1997). Call evolution in *Neobatrachus* (Anura: Myobatrachidae): Speculations on tetraploid origins. *Copeia*, **1997**, 791-801.
- Roberts, J. D. (1997). Geographic variation in calls of males and determination of species boundaries in tetraploid frogs of the Australian genus *Neobatrachus* (Myobatrachidae). *Aust. J. Zool.*, **45**, 95-112.
- Roberts, J. D. (1993). Hybridisation between the western and northern call races of the *Limnodynastes tasmaniensis* complex (Anura, Myobatrachidae) on the Murray River in south Australia. *Aust. J. Zool.*, **41**, 101-122.
- Robertson, J. C., Watson, J. T. & Kelley, D. B. (1994). Androgen directs sexual differentiation of laryngeal innervation in developing *Xenopus laevis*. *J. Neurobiol.*, **25**, 1625-1636.
- Roesli, M. & Reyer, H.-U. (2000). Male vocalization and female choice in the hybridogenetic *Rana*

- lessonae/Rana esculenta* complex. *Anim. Behav.*, **60**, 745-755.
- Rose, G. J. & Brenowitz, E. A. (1997). Plasticity of aggressive thresholds in *Hyla regilla*: discrete accommodation to encounter calls. *Anim. Behav.*, **53**, 353-361.
- Roy, D. (1997). Communication signals and sexual selection in amphibians. *Current Science*, **72**, 923-927.
- Roy, D. (1997). Acoustic communication in amphibians of northeast India. *Adv. Ethol.*, **32**, 131.
- Roy, D. & Elepfandt, A. (1993). Bioacoustic analysis of frog calls from northeast India. *J. Biosci.*, **18**, 381-393.
- Roy, D., Borah, B. & Sarma, A. (1995). Analysis and significance of female reciprocal call in frogs. *Curr. Sci.*, **69**, 265-270.
- Roy, D. (1996). Importance of bioacoustic analysis in amphibian taxonomy and conservation. *Zoos' Print*, **11**, 22-25.
- Ruel, T. D., Kelley, D. B. & Tobias, M. L. (1997). Facilitation at the sexually differentiated laryngeal synapse of *Xenopus laevis*. *J. Comp. Physiol. A.*, **182**, 35-42.
- Runkle, L. S., Wells, K. D., Robb, C. C. & Lance, S. L. (1994). Individual, nightly, and seasonal variation in calling behavior of the gray treefrog, *Hyla versicolor*: implications for energy expenditure. *Behav. Ecol.*, **5**, 318-325.
- Runkle, L. S., Wells, K. D., Robb, C. C. & Lance, S. L. (1993). Individual, nightly, and seasonal variation in calling behavior of the gray tree frog, *Hyla versicolor*. *Behav. Ecol.*, **5**, 318-325.
- Ryan, M. J. & Rand, A. S. (1993). Species recognition and sexual selection as a unitary problem in animal communication. *Evolution*, **47**, 647-657.
- Ryan, M. J. & Rand, A. S. (1993). Sexual selection and signal evolution: the ghost of biases past. *Philos. Trans. R. Soc. Lond. B. Biol. Sci.*, **340**, 187-195.
- Ryan, M. J. & Rand, A. S. (1995). Female responses to ancestral advertisement calls in tungara frogs. *Science*, **269**, 390-392.
- Ryan, M. J., Warkentin, K. M., McClelland, B. E. & Wilczynski, W. (1995). Fluctuating asymmetries and advertisement call variation in the cricket frog, *Acris crepitans*. *Behav. Ecol.*, **6**, 124-131.
- Ryan, M. J. & Rand, A. S. (1999). Phylogenetic influence on mating call preferences in female tungara frogs, *Physalaemus pustulosus*. *Anim. Behav.*, **57**, 945-956.
- Ryan, M. J., ed. (2001). *Recent Advances in Anuran Communication*. Smithsonian Institution Press; Washington, D. C.
- Ryan, M. J. & Rand, A. S. (1998). Evoked vocal response in male tungara frogs: pre-existing biases in male responses? *Anim. Behav.*, **56**, 1509-1516.
- Ryan, M. J. & Wilczynski, W. (1988). Coevolution of sender and receiver: effect on local mate preference in cricket frogs. *Science*, **240**, 1786-1788.
- Ryan, M. J. & Sullivan, B. K. (1989). Transmission effects on temporal structure in the advertisement calls of two toads, *Bufo woodhousii* and *Bufo valliceps*. *Ethology*, **80**, 182-189.
- Ryan, M. J. (1988). Constraints and patterns in the evolution of anuran acoustic communication. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, M. J. Ryan, W. Wilczynski, T. E. Hetherington & W. Walkowiak, eds.). John Wiley & Sons; New York, pp. 637-678.
- Ryan, M. J. & Rand, A. S. (1999). Phylogenetic inference and the evolution of communication in tungara frogs. In *The Design of Animal Communication* (M. D. Hauser and M. Konishi, eds.). MIT Press; Cambridge, Massachusetts, pp. 535-557.
- Ryan, M. J., Cocroft, R. B. & Wilczynski, W. (1990). The role of environmental selection in intraspecific divergence of mate recognition signals in the cricket frog, *Acris crepitans*. *Evolution*, **44**, 1869-1872.
- Ryan, M. J. & Rand, A. S. (1993). Phylogenetic patterns of behavioral mate recognition systems in the *Physalaemus pustulosus* species group (Anura: Leptodactylidae): the role of ancestral and derived characters and sensory exploitation. In *Evolutionary Patterns and Processes* (D. Lees and D. Edwards, eds.). Academic Press; New York, pp. 251-267.
- Ryan, M. J., Rand, A. S. & Weigt, L. A. (1996). Allozyme and advertisement call variation in the tungara frog, *Physalaemus pustulosus*. *Evolution*, **50**, 2435-2453.
- Sanchez-Herranz, M. J., Marquez, R., Barbadillo, L. J. & Bosch, J. (1995). Mating calls of three species of anurans from Borneo. *Herpet. J.*, **5**, 293-297.
- Schlaepfer, M. A. & Figeroa-Sandi, R. (1998). Female reciprocal calling in a Costa Rican leaf-litter frog, *Eleutherodactylus podiciferus*. *Copeia*, **1998**, 1076-1080.
- Schmidt, R. S. (1992). Neural correlates of frog calling: production by two semi-independent generators. *Behav. Brain Res.*, **50**, 17-30.
- Schneider, H. (1997). Calls and reproductive behaviour of the water frogs of Damascus, Syria (Amphibia: Anura: *Rana bedriagae* Camerano, 1882). *Zool. Middle East*, **15**, 51-66.
- Schneider, H. & Sinsch, U. (1999). Taxonomic reassessment of Middle Eastern water frogs: Bioacoustic variation among populations considered as *Rana ridibunda*, *R. bedriagae* or *R. levantina*. *J. Zool. Syst. Evol. Res.*, **37**, 57-66.

- Schneider, H., Hussein, F. & Akef, M. S. A. (1986). Comparative bioacoustic studies in the yellow-bellied toad, *Bombina variegata* (L.), and relationships of European and Asian species and subspecies of the genus *Bombina* (Anura, Amphibia). *Bonn. Zool. Beitr.*, **37**, 49-67.
- Schneider, H., Sinsch, U. & Sofianidou, T. S. (1993). The water frogs of Greece: bioacoustic evidence for a new species. *Z. Zool. Syst. Evolutionsforsch.*, **31**, 47-63.
- Schneider, H. & Haxhiu, I. (1994). Mating-call analysis and taxonomy of the water frogs in Albania (Anura: Ranidae). *Zool. Jb. Syst.*, **121**, 248-262.
- Schneider, H. (1988). Bioacoustical studies on Mediterranean hylids. *Z. Vergl. Physiol.*, **61**, 369-385 (German).
- Schneider, H. & Sinsch, U. (1991). Mating call variation in lake frogs referred to as *Rana ridibunda*. *Z. Zool. Syst. Evolut.-Forsch.*, **30**, 297-315.
- Schneider, H. & Sofianidou, T. S. (1993). The water frogs of Greece - bioacoustic evidence for a new species. *Z. Zool. Syst. Evolut.-Forsch.*, **31**, 47-63.
- Schneider, H. (1997). Call behaviour and calls of the lake frog *Rana ridibunda* Pallas, 1771, in West-Kasachstan. *Herpetofauna*, **19**, 189-202 (German).
- Schneider, H. (1992). Bioacoustics of ranids. Call analyses and meanings for systematics. *Biologie in unserer Zeit*, **22**, 342-349 (German).
- Schneider, H. (1999). Calls of the Levantine frog, *Rana bedriagae*, at Birket Ata, Israel (Amphibia: Anura). *Zool. Middle East*, **19**, 101-116.
- Schwartz, J. J. & Gerhardt, H. C. (1998). The neuroethology of frequency preferences in the spring peeper. *Anim. Behav.*, **56**, 55-69.
- Schwartz, J. J., Buchanan, B. W. & Gerhardt, H. C. (2001). Female mate choice in the gray treefrog (*Hyla versicolor*) in three experimental environments. *Behav. Ecol. Sociobiol.*, **49**, 443-455.
- Schwartz, J. J. (1993). Male calling behavior, female discrimination, and acoustic interference in the Neotropical tree frog *Hyla microcephala* under realistic acoustic conditions. *Behav. Ecol. Sociobiol.*, **32**, 401-414.
- Schwartz, J. J. (1991). Why stop calling? Unison bout singing in a neotropical treefrog. *Anim. Behav.*, **42**, 565-577.
- Schwartz, J. J. (1986). Male calling *Behaviour* and female choice in the neotropical treefrog *Hyla microcephala*. *Ethology*, **73**, 116-127.
- Schwartz, J. J. (1994). Male advertisement and female choice in frogs: new findings and recent approaches to the study of communication in a dynamic acoustic environment. *Am. Zool.*, **34**, 616-625.
- Schwartz, J. J., Ressel, S. J. & Bevier, C. R. (1995). Carbohydrate and calling: Depletion of muscle glycogen and the chorusing dynamics of the neotropical treefrog *Hyla microcephala*. *Behav. Ecol. Sociobiol.*, **37**, 125-135.
- Schwartz, J. J. (2001). Call monitoring and interactive playback systems in the study of acoustic interactions among male anurans. In *Recent Advances in Anuran Communication* (M. J. Ryan, ed.). Smithsonian Institution Press; Washington, D. C., pp. 183-204.
- Schwartz, J. J., Bee, M. A. & Tanner, S. D. (2000). A behavioral and neurobiological study of the responses of gray treefrogs, *Hyla versicolor*, to the calls of a predator, *Rana catesbeiana*. *Herpetologica*, **56**, 27-37.
- Seidel, B., Yamashita, M., Choi, I. H. & Dittami, J. (2001). Water wave communication in the genus *Bombina* (Amphibia). *Adv. Space Res.*, **28**, 589-594.
- Semsar, K., Klomberg, K. F. & Marler, C. (1998). Arginine vasotocin increases calling-site acquisition by nonresident male grey treefrogs. *Anim. Behav.*, **56**, 983-987.
- Simmitti, S. J. (1999). Individual variation in morphological, physiological, and biochemical features associated with calling in spring peepers (*Pseudacris crucifer*). *Phys. Biochem. Zool.*, **72**, 666-676.
- Simmons, A. M., Buxbaum, R. C. & Mirin, M. P. (1993). Perception of complex sounds by the green treefrog, *Hyla cinerea*: Envelope and fine-structure cues. *J. Comp. Physiol. A.*, **173**, 321-327.
- Simmons, A. M., Sanderson, M. I. & Garabedian, C. E. (2000). Representation of waveform periodicity in the auditory midbrain of the bullfrog, *Rana catesbeiana*. *J. Assoc. Res. Otolaryngol.*, **1**, 2-24.
- Simmons, A. M. & Bean, M. E. (2000). Perception of mistuned harmonics in complex sounds by the bullfrog (*Rana catesbeiana*). *J. Comp. Psychol.*, **114**, 167-173.
- Sinsch, U. & Eblenkamp, B. (1994). Allozyme variation among *Rana balcanica*, *R. levantina*, and *R. ridibunda* (Amphibia, Anura): Genetic differentiation corroborates the bioacoustically detected species status. *Z. Zool. Syst. Evolutionsforsch.*, **32**, 35-43.
- Sinsch, U. & Schneider, H. (1996). Bioacoustic assessment of the taxonomic status of pool frog populations (*Rana lessonae*) with reference to a topotypic population. *Z. Zoo. Syst. Evol. Research*, **34**, 63-73.
- Smith, K. G. & Barichivich, W. J. (2001). Caudata: *Plethodon jordani* (Jordan's salamander). Vocalization. *Herpetol. Rev.*, **32**, 246-247.
- Smotherman, M. S. & Narins, P. M. (1999). The electrical properties of auditory hair cells in the frog amphibian papilla. *J. Neurosci.*, **19**, 5275-5292.
- Solis, R. (1997). Individual and endocrine factors affecting the vocal behaviour of frogs *Pleurodema thaul*. *Adv.*

Ethol., **32**, 66.

- Solis, R. & Penna, M. (1997). Testosterone levels and evoked vocal responses in a natural population of the frog *Batrachyla taeniata*. *Horm. Behav.*, **31**, 101-109.
- Stewart, M. M. & Bishop, P. J. (1994). Effects of increased sound level of advertisement calls on calling male frogs, *Eleutherodactylus coqui*. *J. Herpetol.*, **28**, 46-53.
- Stiebler, I. B. & Narins, P. M. (1990). Temperature-dependence of auditory nerve response properties in the frog. *Hear. Res.*, **46**, 63-82.
- Sullivan, B. K. (1992). Calling behavior of the southwestern toad (*Bufo microscaphus*). *Herpetologica*, **1992**, 383-389.
- Sullivan, B. K., Malmos, K. B., Gergus, E. W. A. & Bowker, R. W. (2000). Evolutionary implications of advertisement call variation in *Bufo debilis*, *B. punctatus*, and *B. retiformis*. *J. Herpetol.*, **34**, 368-374.
- Sullivan, B. K., Malmos, K. B. & Given, M. F. (1996). Systematics of the *Bufo woodhousii* complex (Anura: Bufonidae): Advertisement call variation. *Copeia*, **1996**, 274-280.
- Tada, I. E. di, Martino, A. & Sinsch, U. (2001). Release vocalizations in neotropical toads (*Bufo*): Ecological constraints and phylogenetic implications. *J. Zool. Syst. Evol. Res.*, **39**, 13-23.
- Tejedo, M. (1993). Do male natterjack toads join larger breeding choruses to increase mating success? *Copeia*, **1993**, 75-80.
- Tejedo, M. (1992). Large male mating advantage in natterjack toads, *Bufo calamita*: sexual selection or energetic constraints? *Anim. Behav.*, **44**, 557-569.
- Tito, M. B., Hoover, M. A., Mingo, A. M. & Boyd, S. K. (1999). Vasotocin maintains multiple call types in the gray treefrog, *Hyla versicolor*. *Horm. Behav.*, **36**, 166-175.
- Tobias, M., Viswanathan, S. & Kelley, D. (1998). Rapping, a female receptive call, initiates male-female duets in the South African clawed frog. *Proc. Natl. Acad. Sci. USA*, **95**, 1870-1875.
- Tobias, M. L., Marin, M. L. & Kelley, D. B. (1991). Development of functional sex differences in the larynx of *Xenopus laevis*. *Dev. Biol.*, **147**, 251-259.
- Tobias, M. L., Marin, M. L. & Kelley, D. B. (1993). The roles of sex, innervation, and androgen in laryngeal muscle of *Xenopus laevis*. *J. Neurosci.*, **13**, 324-333.
- Ueda, H. (1993). Mating calls of autotriploid and autotetraploid males in *Hyla japonica*. *Sci. Rep. Lab. Amphib. Biol. Hiroshima Univ.*, **12**, 177-189.
- Ueda, H. (1994). Mating calls of the pond frog species distributed in the far east and their artificial hybrids. *Sci. Rep. lab. Amphib. Biol. Hiroshima Univ.*, **13**, 197-232.
- Vences, M. & Glaw, F. (1996). Further investigations on *Discoglossus* bioacoustics: Relationships between *D. galganoi galganoi*, *D. g. jeanneae* and *D. pictus scovazzi*. *Amphib-Reptilia*, **17**, 333-340.
- Wagner, W. E. (1989). Fighting, assessment, and frequency alteration in Blanchard's cricket frog. *Behav. Ecol. Sociobiol.*, **25**, 429-436.
- Wagner, W. J. Jr. (1991). *Social selection on male calling behavior in Blanchard's Cricket Frog*. Ph.D. thesis. University of Texas at Austin.
- Wagner, W. J. Jr. (1989). Social correlates of variation in male calling behaviour in Blanchard's cricket frog, *Acris crepitans blanchardi*. *Ethology*, **30**, 27-45.
- Wagner, W. E., Jr. & Sullivan, B. K. (1995). Sexual selection in the Gulf Coast toad, *Bufo valliceps*: female choice based on variable characters. *Anim. Behav.*, **49**, 305-319.
- Walkowiak, W. & Luksch, H. (1994). Sensory motor interfacing in acoustic behavior of anurans. *Am. Zool.*, **34**, 685-695.
- Walkowiak, W. (1988). Central temporal encoding. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, W. Wilczynski, M. J. Ryan & W. Walkowiak, eds.). John Wiley; New York, pp. 275-294.
- Wang, J. & Narins, P. M. (1996). Directional masking of phase locking in the amphibian auditory nerve. *J. Acoust. Soc. Am.*, **99**, 1611-1620.
- Wang, J., Ludwig, T. A. & Narins, P. M. (1996). Spatial and spectral dependence of the auditory periphery in the northern leopard frog. *J. Comp. Physiol. A.*, **178**, 159-172.
- Watson, J. T., Robertson, J., Sachdev, U. & Kelley, D. B. (1993). Laryngeal muscle and motor neuron plasticity in *Xenopus laevis*: testicular masculinization of a developing neuromuscular system. *J. Neurobiol.*, **24**, 1615-1625.
- Welch, A. M., Semlitsch, R. D. & Gerhardt, H. C. (1998). Call duration as an indicator of genetic quality in male gray tree frogs. *Science*, **280**, 1928-1930.
- Wells, K. D. & Taigen, T. L. (1986). The effect of social interactions on calling energetics in the gray tree frog. *Behav. Ecol. Sociobiol.*, **19**, 9-18.
- Wells, K. D. & Taigen, T. L. (1986). The effect of social interactions on calling energetics in the grey treefrog (*Hyla versicolor*). *Behav. Ecol. Sociobiol.*, **19**, 9-18.
- Wells, K. D. (1988). The effect of social interactions on anuran vocal behavior. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, M. J. Ryan, W. Wilczynski, T. E. Hetherington & W.

- Walkowiak, eds.). John Wiley; New York, pp. 433-454.
- Wilczynski, W., McClelland, B. E. & Rand, A. S. (1993). Acoustic, auditory and morphological divergence in three species of neotropical frog. *J. Comp. Physiol. A.*, **172**, 425-438.
- Wilczynski, W., Rand, A. S. & Ryan, M. J. (1995). The processing of spectral cues by the call analysis system of the tungara frog, *Physalaemus pustulosus*. *Anim. Behav.*, **49**, 911-929.
- Wilczynski, W., Resler, C. & Capranica, R. R. (1987). Tympanic and extratympanic sound transmission in the leopard frog. *J. Comp. Physiol. A.*, **161**, 659-669.
- Wilczynski, W., Rand, A. S. & Ryan, M. J. (1999). Female preferences for temporal order of call components in the tungara frog: A Bayesian analysis. *Anim. Behav.*, **58**, 841-851.
- Wilczynski, W., Rand, A. S. & Ryan, M. J. (2001). Evolution of calls and auditory tuning in the *Physalaemus pustulosus* species group. *Brain Behav. Evol.*, **58**, 137-151.
- Witte, K., Ryan, M. J. & Wilczynski, W. (2001). Changes in frequency structure of a mating call decrease its attractiveness to females in the cricket frog *Acris crepitans blanchardi*. *Ethology*, **107**, 685-699.
- Witte, K., Kime, N. M., Wilczynski, W. & Ryan, M. J. (1998). Mate location in a noisy environment in the cricket frog *Acris crepitans blanchardi*. *Bioacoustics*, **9**, 152.
- Wollerman, L. (1998). Stabilizing and directional preferences of female *Hyla ebraccata* for calls differing in static properties. *Anim. Behav.*, **55**, 1619-1630.
- Wollerman, L. & Wiley, R. H. (2002). Background noise from a natural chorus alters female discrimination of male calls in a Neotropical frog. *Anim. Behav.*, **63**, 15-22 (+ erratum p. 1027).
- Wollerman, L. (1997). Mate choice in a noisy environment. *Adv. Ethol.*, **32**, 29.
- Wollerman, L. (1999). Acoustic interference limits call detection in a Neotropical frog *Hyla ebraccata*. *Anim. Behav.*, **57**, 529-536.
- Wollerman, L. (1995). Acoustic communication and acoustic interference in a neotropical frog, *Hyla ebraccata*. Ph.D. thesis. University of North Carolina.
- Yamaguchi, A. & Kelley, D. B. (2000). Generating sexually differentiated vocal patterns: Laryngeal nerve and EMG recordings from vocalizing male and female African clawed frogs (*Xenopus laevis*). *J. Neurosci.*, **20**, 1559-1567.
- Yamaguchi, A., Kaczmarek, L. K. & Kelley, D. B. (2001). Intrincis properties of laryngeal motoneurons that generate sexually distinct vocalizations in African clawed frogs, *Xenopus laevis*. *Soc. Neurosci. Abstr.*, **27**, 241.
- Yamaguchi, A., Kaczmarek, L. K. & Kelley, D. B. (2000). Intrinsic membrane properties of laryngeal motoneurons that control sexually differentiated vocal behavior in African clawed frogs, *Xenopus laevis*. *Biol. Bull.*, **199**, 175-176.
- Yamaguchi, A. & Kelley, D. B. (1999). The central nervous system generates sexually differentiated vocal patterns in African clawed frogs (*Xenopus laevis*). *Soc. Neurosci. Abstr.*, **25**, 1365.
- Yen, G. G. & Quiang, F. (2001). Automatic frog calls monitoring system: a machine learning approach. *Int. J. Comput. Intell. Appl.*, **2**, 165-186.
- Zakon, H. H. & Wilczynski, W. (1988). The physiology of the anuran eighth nerve. In *The Evolution of the Amphibian Auditory System* (B. Fritzsch, M. J. Ryan, W. Wilczynski, T. E. Hetherington & W. Walkowiak, eds.). John Wiley and Sons; New York, pp. 125-155.
- Zhang, H. & Feng, A. S. (1998). Sound direction modifies the inhibitory as well as the excitatory frequency tuning characteristics of single neurons in the frog torus semicircularis (inferior colliculus). *J. Comp. Physiol. A.*, **182**, 725-735.
- Zhang, H., Xu, J. & Feng, A. S. (1999). Effects of GABA-mediated inhibition of direction-dependent frequency tuning in the frog inferior colliculus. *J. Comp. Physiol. A.*, **184**, 85-98.
- Zornik, E. J. & Kelley, D. B. (2001). Identifying interneurons that project to the vocal motor nucleus in *Xenopus laevis*. *Soc. Neurosci. Abstr.*, **27**, 241.