

Selected Publications

Co-Edited Book

2009. Zacccone, G., C. Perrière, A. Mathis and B. G. Kapoor (Eds.). *Fish Defenses, Volume 2: Pathogens, Parasites and Predators*. Science Publishers, Enfield, New Hampshire.

Refereed Journal Articles and Book Chapters

2011. Crane, A. L. and A. Mathis. Landmark learning by the Ozark zigzag salamander, *Plethodon angusticlavius*. *Current Zoology* 57:85–490.
2011. Gall, B. G. and A. Mathis. Ontogenetic shift in response to amphibian alarm cues by banded sculpins (*Cottus carolinae*). *Copeia* 2011:5—8.
2010. Crane, A., and A. Mathis. Predator-recognition training: a conservation strategy to increase survival of hellbenders in head-starting programs. *Zoo Biology* 29:in press. (56)
2010. Gall, B. G. and A. Mathis. Innate predator recognition and the problem of introduced trout. *Ethology* 116: 47-58,
2010. Gall, B. G. and A. Mathis. Response of native and introduced fishes to presumed antipredator secretions of Ozark hellbenders (*Cryptobranchus alleganiensis bishopi*). *Behaviour* 147, 1769-1789. (55)
2010. Gall, B. G., A. L. Crane, and A. Mathis. *Cryptobranchus alleganiensis alleganiensis* (Eastern hellbender). Secretion production. *Herpetological Review* 41:59. (54)
2009. Mathis, A. Alarm responses as a defense: chemical alarm cues in nonostariophysan fishes. Pp. 323-386. *In: Fish Defenses, Volume 2: Pathogens, Parasites and Predators*. Science Publishers, Enfield, New Hampshire. (53)
2009. Gall, B. G., and A. Mathis. Innate Predator Recognition in Larval Hellbenders (*Cryptobranchus alleganiensis*) and the Problem of Introduced Trout. *Ethology* 116:47-58. (52)
2009. Crane, A. L., D. Woods, and A. Mathis. Behavioural responses to alarm pheromones by free-ranging rainbow darters (*Etheostoma caeruleum*). *Behaviour* 146:1565-1572. (51)
2008. [Mathis, A.](#), [M. C.O. Ferrari](#), [N. Windel](#), [F. Messier](#), and [D. P. Chivers](#). Learning by embryos and the ghost of predation future. *Proceedings of the Royal Society B* 275: 2603–2607. (50)
2008. King, R., R. Gosnell, and A. Mathis. Discrimination of predatory versus nonpredatory mammals by box turtles, *Terrapene carolina*. *Chemoecology* 18:61-64. (49)

2007. Chivers, D.P., B.D. Wisenden, C. J. Hindman, T. A. Michalak, R. C. Kusch, S. G. W. Kaminskyj, K. L. Jack, M. C. O. Ferrari, R. J. Pollock, C. F. Halbgewachs, M. S. Pollock, S. Alemadi, C. T. James, R. K. Savaloja, C. P. Goater, A. Corwin, R. S. Mirza, J. M. Kiesecker, G. E. Brown, J. C. Adrian, Jr., P. H. Krone, A. R. Blaustein, & A. Mathis. Epidermal 'alarm substance' cells of fishes are maintained by non-alarm functions: possible defence against pathogens, parasites and UVB radiation. *Proceedings of the Royal Society B* 274: 2611-2619. (48)
2007. Commens-Carson, A. and A. Mathis. Response of three species of darters of the Genus *Etheostoma* to chemical alarm signals from conspecifics and congeners. *Copeia* 2007:838—843. (47)
2006. Gibson, A. and A. Mathis. Opercular beat rate for rainbow darters, *Etheostoma caeruleum*, exposed to chemical stimuli from conspecific and heterospecific fishes. *Journal of Fish Biology* 69:224-232. (46)
2006. Mirza, R. S., A. Mathis, and D. P. Chivers. Does temporal variation in predation risk influence the intensity of antipredator responses? A test of the risk allocation hypothesis. *Ethology* 112:43—511. (45)
2004. Hickman, C. R., M. D. Stone, and A. Mathis. Priority use of chemical over visual cues for detection of predators by neotenic graybelly salamanders, *Eurycea multiplicata griseogaster*. *Herpetologica* 60:203-210. (44)
2004. Watson, T. R., A. Mathis, and R. Thompson. Influence of physical stress, distress cues, and predator kairomones on the foraging behavior of Ozark zigzag salamanders, *Plethodon angusticlavius*. *Behavioural Processes* 65:201-209. (43)
2003. Mathis, A. Use of chemical cues in detection of conspecific predators and prey by newts, *Notophthalmus viridescens*. *Chemoecology* 13:193-197. (42)
2003. Mathis, A. and D. P. Chivers. Overriding the oddity effect in mixed-species aggregations: group choice by armored and non-armored prey. *Behavioral Ecology* 14: 334-339. (41)
2003. Frese, P. W., A. Mathis, and R. Wilkinson. Population characteristics, growth, and spatial activity of *Siren intermedia* in an intensively managed wetland. *Southwestern Naturalist* 48:534-542. (40)
2003. Mathis, A., K. L. Murray, and C. R. Hickman. Do experience and body size play a role in responses of larval ringed salamander, *Ambystoma annulatum*, to predator kairomones? Laboratory and field assays. *Ethology* 109:159-170. (39)

2003. Wheeler, B. A., E. Prosen, A. Mathis, and R. F. Wilkinson. Population declines of a long-lived salamander: a 20+-year study of hellbenders. *Biological Conservation* 109:151-156. (38)
2001. Maksimowich, D. and A. Mathis. Pheromonal markers as indicators of parasite load: parasite-mediated behavior in salamanders (*Plethodon angusticlavius*). *Acta Ethologica* 3:83-87. (37)
2000. Mathis, A. and F. Vincent. Differential use of visual and chemical cues in predator recognition and threat-sensitive antipredator behaviour by larval central newts, *Notophthalmus viridescens*. *Canadian Journal of Zoology* 78: 1646-1652. (36)
2000. Whitham, J. and A. Mathis. Effects of hunger and predation risk on foraging behavior of graybelly salamanders, *Eurycea multiplicata*. *Journal of Chemical Ecology* 26:1659-1665. (35)
2000. Sullivan, A. M., P. W. Frese, and A. Mathis. Does the aquatic salamander, *Siren intermedia*, respond to chemical cues from prey? *Journal of Herpetology* 34:607-611. (34)
2000. Goddard, K. and A. Mathis. Opercular flaps as sexual ornaments for male longear sunfish (*Lepomis megalotis*): male condition and male-male competition. *Ethology* 106:631-643. (33)
2000. Maksimowich, D. and A. Mathis. Parasitized salamanders are inferior competitors for territories and food resources. *Ethology* 106:319-329. (32)
2000. Mathis, A., D. W. Schmidt, and K. A. Medley. The influence of residency status on agonistic behavior of male and female Ozark zigzag salamanders, *Plethodon angusticlavius*. *The American Midland Naturalist* 143:245-249. (31)
1999. Commens, A. and A. Mathis. Alarm pheromones of rainbow darters (*Etheostoma caeruleum*): responses to skin extracts of conspecifics and congeners (*Etheostoma juliae*). *Journal of Fish Biology* 55:1359-1362. (30)
1999. Anderson, M. and A. Mathis. Diets of two sympatric tropical salamanders, *Bolitoglossa mexicana* and *B. rufescens*, with notes on reproduction for *B. rufescens*. *Journal of Herpetology* 33:601-607. (29)
1999. Mathis, A. and E. Britzke. Asymmetries in body size and experience influence agonistic displays in the zigzag salamander, *Plethodon angusticlavius*. *Herpetologica* 55:344-352. (28)

1998. Mathis, A., K. Deckard and C. Duer. Laboratory evidence for territorial behavior by the southern red-backed salamander, *Plethodon serratus*: Influence of residency status and pheromonal advertisement. *Southwestern Naturalist* 43:1-5. (27)
1998. Mathis, A. and D. Lancaster. Response of terrestrial salamanders to chemical stimuli from distressed conspecifics. *Amphibia-Reptilia* 19:330-335. (26)
1998. Summey, M. R. and A. Mathis. Alarm responses to chemical stimuli from damaged conspecifics by three species of Neotropical tadpoles. *Herpetologica* 54:402-408. (25)
1998. Mason, R. T., D. P. Chivers, A. Mathis, and A. R. Blaustein. Bioassay Methods for amphibians and reptiles *In: Methods in Chemical Ecology, Volume II, Bioassay Methods* (J.G. Millar and K. F. Haynes, eds.), pp.271-325. Chapman and Hall. London. (24)
1998. Woody, D. and A. Mathis. Acquired recognition of chemical stimuli from an unfamiliar predator: Associative learning by adult newts, *Notophthalmus viridescens*. *Copeia* 1998:1027-1031. (23)
1997. Goddard, K. and A. Mathis. Do opercular flaps of male longear sunfish (*Lepomis megalotis*) serve as sexual ornaments during female mate choice? *Ethology, Ecology, and Evolution* 3:223-231. (22)
1997. Woody, D. and A. Mathis. Avoidance of areas labeled with chemical stimuli from damaged conspecifics by adult newts, *Notophthalmus viridescens*, in a natural habitat. *Journal of Herpetology* 31:316-318. (21)
1997. Mathis, A. and W.W. Hoback. The influence of chemical stimuli from predators on pre-copulatory pairing by the amphipod, *Gammarus pseudolimnaeus*. *Ethology* 103:33-40. (20)
1997. Goddard, K. and A. Mathis. Microhabitat preferences of longear sunfish: low light intensity versus submerged cover. *Environmental Biology of Fishes* 49:495-499. (19)
1996. Mathis, A., D.P. Chivers and R.J.F. Smith. Cultural transmission of predator recognition in fishes: Intraspecific and interspecific learning. *Animal Behaviour* 51:185-201. (18)
1995. Mathis, A., D.P. Chivers and R.J.F. Smith. Chemical alarm signals: Predator deterrents or predator attractants? *The American Naturalist* 145:994-1005. (17)
1995. Mathis, A., R.G. Jaeger, W.H. Keen, P.K. Ducey, S.C. Walls and B.W. Buchanan. Aggression and territoriality by salamanders and a comparison with the territorial behavior of frogs. *In: Amphibian Biology, Vol. 2* (H. Heatwole and B.K. Sullivan, eds.), pp. 633-676. Surrey Beatty and Sons, New South Wales, Australia. (16)

1994. Mathis, A. and R. Simons. Size-dependent responses of resident male red-backed salamanders to chemical stimuli from conspecifics. *Herpetologica* 50:335-344. (15)
1993. Gelowitz, C., A. Mathis and R.J.F. Smith. Chemosensory recognition of northern pike (*Esox lucius*) by brook stickleback (*Culaea inconstans*): Population differences and influence of predator diet. *Behaviour* 127:105-118. (14)
1993. Mathis, A. and R.J.F. Smith. Chemical alarm response of northern pike (*Esox lucius*) by the alarm pheromone of fathead minnows (*Pimephales promelas*). *Journal of Chemical Ecology* 19:1967-1979. (13)
1993. Mathis, A. and R.J.F. Smith. Intraspecific and cross-species responses to a chemical alarm signal by brook stickleback. *Ecology* 74:2395-2404. (12)
1993. Mathis, A. and R.J.F. Smith. Chemical alarm signals increase the survival time of fathead minnows (*Pimephales promelas*) during encounters with northern pike (*Esox lucius*). *Behavioral Ecology* 4:260-265. (11)
1993. Mathis, A. and R.J.F. Smith. Fathead minnows (*Pimephales promelas*) learn to recognize pike (*Esox lucius*) as predators on the basis of chemical stimuli from minnows in the pike's diet. *Animal Behaviour* 46:645-656. (10)

1993. Mathis, A., D.C. Chivers, and R.J.F. Smith. Population differences in responses of fathead minnows (*Pimephales promelas*) to chemical and visual stimuli from predators. *Ethology* 93:31-40. (9)
1992. Mathis, A. and R.J.F. Smith. Avoidance of areas marked with chemical alarm substances by fathead minnows (*Pimephales promelas*) in a natural habitat. *Canadian Journal of Zoology* 70:1473-1476. (8)
1991. Mathis, A. Large male advantage for access to females: evidence of male-male competition and female discrimination in a territorial salamander. *Behavioral Ecology and Sociobiology* 29:133-138. (7)
1991. Mathis, A. Territories of male and female terrestrial salamanders: costs, benefits and intersexual spatial associations. *Oecologia* 86:433-440. (6)
1990. Mathis, A. Territorial salamanders assess sexual competitive information via chemical signals. *Animal Behaviour* 40:953-962. (5)
1990. Mathis, A. Territoriality in a terrestrial salamander: the influence of resource quality and body size. *Behaviour* 112:162-175. (4)
1989. Walls, S.C., A. Mathis, R.G. Jaeger and W.F. Gergits. Male salamanders with high quality diets have faeces attractive to females. *Animal Behaviour* 38:546-548. (3)
1989. Mathis, A. Do seasonal spatial distributions in a terrestrial salamander reflect reproductive behavior or territoriality? *Copeia* 1989:788-791. (2)
1988. Mathis, A. and F.R. Moore. Geomagnetism and the homeward orientation of the box turtle, *Terrapene carolina*. *Ethology* 78:265-274. (1)