

## CURRICULUM VITAE

James W. Petranka

### **VITAL STATISTICS:**

Date of Birth: December 31, 1951

Place of Birth: Montgomery, Alabama

Citizenship: United States

### **EDUCATION:**

1970-1975: Auburn University, BS, 1975 (Wildlife Ecology)

1975-1977: Oklahoma State University, MS, 1977 (Plant Ecology)

1977-1982: University of Kentucky, Ph.D., 1982 (Ecology)

1982-1985: Postdoctoral researcher, University of Kentucky (Andy Sih)

1986-1988 NSF Postdoctoral Fellow- UNC Chapel Hill (Nelson Hairston, Sr.)

### **RESEARCH AND PROFESSIONAL EXPERIENCE:**

1984-1986: Research Professor- Department of Biology, University of Kentucky

1988-1993 Assistant Professor of Biology, University of North Carolina at Asheville

1994-2000 Associate Professor of Biology, University of North Carolina at Asheville

2000-2014 Professor of Biology, University of North Carolina at Asheville

2015 - Professor Emeritus, University of North Carolina at Asheville

### **HONORS AND AWARDS RECEIVED:**

President; Southeastern Division of the American Society of Ichthyologists and Herpetologists, 1986-87.

NSF Postdoctoral Fellow, University of North Carolina at Chapel Hill

Feldman Award for distinguished scholarship, UNC-Asheville (1993)

Distinguished Teacher in the Natural Sciences, UNC-Asheville (1996)

Associate Editor, *Journal of Herpetology* (1993-1996)

Editorial Boards: *Copeia* (1996-1999), *Journal of Herpetology* (1996-2010), *Herpetologica* (2004-2006)

Associate Editor, *Wetlands* (2004-2006)

### **PROFESSIONAL ORGANIZATIONS:**

Association of Southeastern Biologists

Society for the Study of Amphibians and Reptiles

Herpetologists' League

American Society of Ichthyologists and Herpetologists

Society of Wetland Scientists

**FUNDED GRANT SUPPORT:**

- \$128,000** NSF GRANT BSR-8500329; History, Natural Selection, and the Traits and Distribution of a Salamander (CoPI with Andrew Sih of University of Kentucky).
- \$52,800** NSF GRANT BSR-8502461; A Test For Density-dependent Growth in Natural Communities of Larval Amphibians.
- \$1,350** UNCA Intramural Faculty Fellowship; A Study of Chemically-Mediated Predator Avoidance in Aquatic Organisms.
- \$5,640** U.S. Forest Service Grant; Survey of Biodiversity of the Craggy Mountains
- \$10,900** U.S. Forest Service Grant; Survey of Biodiversity of the Grandfather Ranger District.
- \$ 90,000** National Park Service; Monitoring amphibians in National Parks in the Southeast.
- \$214,000** Restoring Wetlands for a Mitigation Bank for Surface transportation Projects in western North Carolina (coPIs are Kevin Moorhead, and Irene and Reed Rossell; funded by the State of North Carolina for May 1994-May 1996).
- \$199,000** Renewal: Restoring Wetlands for a Mitigation Bank for Surface transportation Projects in western North Carolina (coPIs are Kevin Moorhead, and Irene Rossell; funded by the State of North Carolina for August 1996-May 1998).
- \$75,883** Ecological Assessment of the Restored Wetlands of the Tulula Mitigation Bank : Phase I (coPIs are Kevin Moorhead, and Irene Rossell in Environmental Studies Program; funded through 2000).
- \$36,056.** Monitoring Plants and Amphibians in Created Wetlands at Cumberland Gap National Historical Park. (August 2000- December 2004).
- \$182,686** Ecological Assessment of a Wetlands Mitigation Bank (coPIs are Kevin Moorhead, and Irene Rossell in Department of Environmental Studies; funded by NC Department of Transportation for July 1, 2000-June 30, 2002).
- \$193,200** Ecological Assessment of a Wetlands Mitigation Bank: Phase II (coPIs are Kevin Moorhead, and Irene Rossell in Department of Environmental Studies; funded by NC Department of Transportation and CTE for July 1, 2002-June 30, 2004).
- \$191,131** Ecological Assessment of a Wetlands Mitigation Bank: Phase III (coPIs are Kevin Moorhead, Irene Rossell, and Kitti Reynolds in Department of Environmental Studies; funded by NC Department of Transportation and CTE for July 1, 2004-June 30, 2006).

**PUBLICATIONS IN REFEREED JOURNALS (UNC-Asheville undergraduate students in bold):**

1. Petranka, J. W. and A. Phillippi. 1978. Observations on the courtship behavior of juvenile *Chrysemys concinna* and *Chrysemys hoyi*. *Journal of Herpetology* 12:417-419.
2. Petranka, J. W. and J. K. McPherson. 1979. The role of *Rhus coppalina* in the dynamics of the forest prairie ecotone in north-central Oklahoma. *Ecology* 60:956-965.
3. Petranka, J. W. 1979. The effects of severe winter weather on *Plethodon dorsalis* and *Plethodon richmondi* in central Kentucky. *Journal of Herpetology* 13:369-370.

4. Petranka, J. W. and J. G. Petranka. 1980. Selected aspects of the larval ecology of the marbled salamander, *Ambystoma opacum*, in the southern portion of its range. *American Midland Naturalist* 104:352-363.
5. Petranka, J. W. and R. Holland. 1980. A quantitative analysis of bottomland communities in south-central Oklahoma. *The Southwestern Naturalist* 25:207-214.
6. Warde, W. and J. W. Petranka. 1981. A correction factor table for missing point-center quarter data. *Ecology* 62:491-494.
7. Petranka, J. W. and J. G. Petranka. 1981. Notes on the nesting biology of the marbled salamander, *Ambystoma opacum*, in the southern portion of its range. *Alabama Academy of Sciences*: 52:20-24.
8. Petranka, J. W. and J. G. Petranka. 1981. On the evolution of nest site selection in the marbled salamander, *Ambystoma opacum*. *Copeia* 1981:387-391.
9. Petranka, J. W., Just, J. J., and E. C. Crawford, Jr. 1982. Hatching of amphibian embryos: the physiological trigger. *Science* 217:257-259.
10. Petranka, J. W. 1982. Geographic variation in the mode of reproduction and larval characteristics of the small-mouthed salamander in the east-central United States. *Herpetologica* 38:252-262.
11. Petranka, J. W. 1982. Observations on courtship in stream-breeding populations of the small-mouthed salamander in central Kentucky. *Herpetologica* 38:333-336.
12. Petranka, J. W. 1983. Fish predation: a factor affecting the spatial distribution of a stream-breeding salamander. *Copeia* 1983:624-628.
13. Petranka, J. W. 1984. Ontogeny of the diet and feeding behavior of *Eurycea bislineata*. *Journal of Herpetology* 18:48-55.
14. Petranka, J. W. 1984. Sources of interpopulational variation in growth response of larval salamanders. *Ecology* 65:1857-1865.
15. Petranka, J. W. 1984. Incubation, larval growth, and embryonic and larval survivorship of small-mouthed salamanders (*Ambystoma texanum*) in streams. *Copeia* 1984:862-868.
16. Petranka, J. W. 1984. Breeding migrations, breeding season, clutch size and oviposition of the stream form of *Ambystoma texanum*. *Journal of Herpetology* 18:106-112.
17. Sih, A., P. Crowley, M. McPeck, J. Petranka, and K. Strohmeijer. 1985. Predation, competition, and prey communities: a review of field experiments. *Annual Review of Ecology and Systematics* 16:269-311.
18. Petranka, J. W. 1985. Does mortality proneness decrease with age in amphibian larvae? *Copeia* 1985: 1080-1083.
19. Dupre, K. and J. W. Petranka. 1985. Ontogeny of temperature selection in larval amphibians. *Copeia* 1985: 462-467.
20. Petranka, J. W. and A. Sih. 1986. Environmental instability, competition, and density-dependent growth and survivorship of a stream-dwelling salamander. *Ecology* 67:729-736.
21. Petranka, J. W., Kats, L., and A. Sih. 1987. Predator-prey interactions among fish and amphibians: use of chemical cues to detect predatory fish. *Animal Behavior* 35:420-425.
22. Smith, C. K. and J. W. Petranka. 1987. Prey size-distributions and size-specific foraging success of *Ambystoma* larvae. *Oecologia* 71:239-244.
23. Petranka, J. W., Sih, A., Kats, L. B., and J. R. Holomuzki. 1987. Stream drift, size-specific predation, and the evolution of ovum size in an amphibian. *Oecologia* 71:624-630.

24. Petranka, J. W. and A. Sih. 1987. Habitat duration, length of the larval period, and the evolution of a complex life cycle of an amphibian. *Evolution* 41:1347-1356.
25. Sih, A., Petranka, J. W., and L. B. Kats. 1988. The dynamics of prey refuge use: a model and tests with sunfish and salamander larvae. *The American Naturalist* 132:463-483.
26. Kraus, F. and J. W. Petranka. 1988. A new species of *Ambystoma* from the Ohio River drainage. *Copeia* 1989:94-110.
27. Kats, L. B., Petranka, J. W., and A. Sih. 1988. Antipredator defenses and the persistence of amphibian larvae with fishes. *Ecology* 69:1865-1870.
28. Sih, A. and J. W. Petranka. 1988. Optimal foraging in big-mouthed predators: studies of larval amphibians. *Behavioral Ecology and Sociobiology* 23:335-339.
29. Petranka, J. W. 1989. Response of toad tadpoles to conflicting chemical stimuli: predator avoidance versus optimal foraging. *Herpetologica* 45:283-292.
30. Petranka, J. W. 1989. Chemical interference competition in tadpoles: does it occur outside laboratory aquaria? *Copeia* 1989:921-930.
31. Petranka, J. W. 1989. Density-dependent growth and survivorship of larval *Ambystoma*: evidence from whole-pond manipulations. *Ecology* 70: 1752-1767.
32. Petranka, J. W. 1989. *Salamanders of Ohio* (book review). *Copeia* 1989:1119-1121.
33. Petranka, J. W. 1990. Observations on nest site selection, nest desertion, and embryonic survival in marbled salamanders. *Journal of Herpetology* 24: 229-234.
34. Petranka, J. W. 1990. Caught between a rock and a hard place. *Herpetologica* 46: 346-350.
35. Petranka, J. W. and **K. A. Fakhoury**. 1991. Evidence of a chemically-mediated avoidance response of ovipositing insects to bluegills and green frog tadpoles. *Copeia* 1991: 234-239.
36. Petranka, J. W., Eldridge, M. E., and **K. E. Haley**. 1993. Effects of timber harvesting of southern Appalachian salamanders. *Conservation Biology* 7: 363-370.
37. **Biesterfeldt, J. M.**, Petranka, J. W., and **S. Sherbondy**. 1993. Prevalence of chemical interference competition in natural populations of wood frogs, *Rana sylvatica*. *Copeia* 1993: 688-695.
38. Petranka, J. W., **Brannon, M. P.**, Hopey, M. E., and C. K. Smith. 1994. Effects of Timber Harvesting on low elevation populations of southern Appalachian Salamander Communities. *Forest Ecology and Management* 67:135-147.
39. Petranka, J. W., **Boone, S. J.**, **Hopey, M. E.**, and **S. D. Baird**, and **B. Jennings**. 1994. Breeding habitat segregation of wood frogs and American toads: the role of interspecific tadpole predation and adult choice. *Copeia* 1994:691-697.
40. **Hopey, M. E.** and J. W. Petranka. 1994. Restriction of wood frogs to fish-free habitats: how important is adult choice versus direct predation? *Copeia* 1994:1023-1025.
41. Petranka, J. W. 1994. Response to impact of timber harvesting on salamanders. *Conservation Biology* 8:302-304.
42. Petranka, J. W. 1994. Interference competition in tadpoles: are multiple agents involved? *Herpetological Journal* 5:206-207.
43. **Kucken, D. J.**, **Davis, J. S.**, Petranka, J. W. and C. K. Smith. 1994. Anakeesta stream acidification and metal contamination: Effects on a salamander community. *Journal of Environmental Quality* 23:1311-1317.

44. Petranka, J. W. and **D. A. G. Thomas**. 1995. Explosive breeding reduces egg and tadpole cannibalism in the wood frog, *Rana sylvatica*. *Animal Behaviour* 50:731-739.
45. **Selby, M. F., Winkel, S. C.** and J. W. Petranka. 1996. Geographic uniformity in agonistic behaviors of Jordan's salamander. *Herpetologica* 52:108-115.
46. Smith, C. K., Petranka, J. W., and **R. L. Barwick**. 1996a. *Desmognathus quadramaculatus* (Black-bellied Salamander). Reproduction. *Herpetological Review* 27:136.
47. Smith, C. K., Petranka, J. W., and **R. L. Barwick**. 1996b. *Desmognathus welteri* (Black Mountain Dusky Salamander). Reproduction. *Herpetological Review* 27:136.
48. Scott, A. F., Miller, B. T., Brown, M., and J. W. Petranka. 1998. *Ambystoma barbouri* (Streamside Salamander). *Herpetological Review* 28:155.
49. Petranka, J. W., **Rushlow, A. W.**, and **M. E. Hopey**. 1998. Predation by tadpoles of *Rana sylvatica* on embryos of *Ambystoma maculatum*: Implications of ecological role reversals by *Rana* (predator) and *Ambystoma* (prey). *Herpetologica* 54:1-13.
50. Petranka, J. W., and **L. J. Hayes**. 1998. Chemically mediated avoidance of a predatory odonate (*Anax junius*) by American toad (*Bufo americanus*) and wood frog (*Rana sylvatica*) tadpoles. *Behavioural Ecology and Sociobiology* 42:263-271.
51. Petranka, J. W. 1998. Recovery of Salamanders Following Clearcutting in the Southern Appalachians: A critique of Ash's (1997) Estimates. *Conservation Biology* 13:203-205.
52. Petranka, J. W. and **C. A. Koenings**. 1999. Pond tadpoles with generalized morphology: is it time to reconsider their functional roles in aquatic communities? *Oecologia* 120:621-631.
53. Rossell, C. R., Jr., Rossell, I. M., Petranka, J. W., and K. K. Moorhead. 1999. Characteristics of a partially disturbed southern Appalachian bog complex. In: Proceedings of the Appalachian Biogeography Symposium, R. P. Eckerlin, ed. *Virginia Museum of Natural History Publication*, No. 3, pp. 81-89.
54. **Starnes, S. M., Kennedy, C. A.**, and J. W. Petranka. 2000. Sensitivity of Embryos of Southern Appalachian Amphibians to Ambient Solar UV-B Radiation. *Conservation Biology* 14:277-282.
55. **Koenings, C. A.**, Smith, C. K., Domingue, E. A., and J. W. Petranka. 2000. *Desmognathus imitator* (Reproduction). *Herpetological Review* 31:38-39.
56. **Kennedy, C. A.**, Smith, C. K., Domingue, E. A., and J. W. Petranka. 2000. *Desmognathus imitator* (Imitator salamander). Reproduction. *Herpetological Review* 31:38-39.
57. Smith, C. K., and J. W. Petranka. 2000. Monitoring terrestrial salamander populations: repeatability and validity of area-constrained cover object searches. *Journal of Herpetology* 34:547-557.
58. Petranka, J. W. and **S. M. Murray**. 2001. Effectiveness of removal sampling for determining salamander density and biomass: a case study in an appalachian streamside community. *Journal of Herpetology* 35:36-44.
59. Moorhead, K. K., Rossell, I. M., Petranka, J. W., and C. R. Rossell, Jr. Tulula Wetlands mitigation bank. 2001. *Ecological Restoration* 19: 74-80.
60. **Angelon, K. A.** and J. W. Petranka. 2002. Chemicals of predatory mosquitofish (*Gambusia affinis*) influence selection of oviposition site by *Culex* mosquitoes. *Journal of Chemical Ecology*: 797-806.
61. Rossell, C. R., Jr., Rossell, I. M., **Orraca, M. M.**, and J. W. Petranka. 2002. Evidence of epizootic disease as the cause of high mortality in a population of eastern box turtles. *Herpetological Review* 33:99-101.

62. **Anderson, A. R.** and J. W. Petranka. 2003. Odonate predator does not affect hatching time or morphology of embryos of two amphibians. *Journal of Herpetology* 37: 65-71.
63. Petranka, J. W. **Murray, S. M.**, and **C. A. Kennedy**. 2003. Response of amphibians to restoration of a southern Appalachian wetland: perturbations confound post-restoration assessment. *Wetlands* 23:278-290.
64. Petranka, J. W. **Kennedy, C. A.**, and **S. M. Murray**. 2003. Response of amphibians to restoration of a southern Appalachian wetland: a long-term analysis of community dynamics. *Wetlands* 23:1030-1042.
65. Petranka, J. W. Smith C. K., and A. F. Scott. 2004. Identifying the minimal demographic unit for monitoring pond-breeding amphibians. *Ecological Applications* 14:1065-1078.
66. **Holbrook, C. T.** and J. W. Petranka. 2004. Ecological interactions between *Rana sylvatica* and *Ambystoma maculatum*: Evidence of interspecific competition and facultative intraguild predation. *Copeia* 2004:932-939.
67. Petranka, J. W. and C. K. Smith. 2005. A functional analysis of streamside habitat use by southern Appalachian salamanders: Implications for riparian forest management. *Forest Ecology and Management* 210: 443-454.
68. Petranka, J. W. and **C. T. Holbrook**. 2006. Wetland restoration for amphibians: should local sites be designed to support metapopulations or patchy populations? *Restoration Ecology*,14:404-411
69. **Harp, E. M.** and J. W. Petranka. 2006. *Ranavirus* in wood frogs (*Rana sylvatica*): Potential sources of transmission within and between ponds. *Journal of Wildlife Diseases* 42:307-318.
70. **Burley, L. A. Moyer A. T.** and J. W. Petranka. 2006. Interactions between wood frogs and spotted salamanders: tadpole density mediates intraguild predation and intra- and interspecific competition. *Oecologia* 148:641-649.
71. **Sours, G. N.** and J. W. Petranka. 2007. Intraguild predation and competition mediate stage-structured interactions between Wood Frog (*Rana sylvatica*) and Upland Chorus Frog (*Pseudacris feriarum*) Larvae. *Copeia* 2007:131-139.
72. Petranka, J. W. 2007. Evolution of complex life cycles of amphibians: bridging the gap between metapopulation dynamics and life history evolution. *Evolutionary Ecology* 21:751-764.
73. Petranka, J. W., **Harp, E. M.**, **Holbrook, C. T.**, and **J. A. Hamel**. 2007. Long-term persistence of amphibian populations in a restored wetlands complex. *Biological Conservation* 138:371-380.
74. Rothermel, B. B., S. C. Walls, J. C. Mitchell, C. K. Dodd, Jr., L. K. Irwin, D. E. Green, V. M. Vazquez, J. W. Petranka, and D. J. Stevenson. 2008. Widespread occurrence of the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) in the southeastern United States. *Diseases of Aquatic Organisms* 82:3-18.
75. Harper, E. B., Pechmann, J. H. K. and J. W. Petranka. 2009. Field enclosures and terrestrial cages. Book chapter for *Techniques in Ecology and Conservation*, Oxford University Press.
76. Petranka, J. W. and **E. J. Doyle**. 2010. Effects of road salts on the composition of seasonal pond communities: can the use of road salts enhance mosquito recruitment? *Aquatic Ecology* 44:155-166.

#### **BOOKS:**

Petranka, James W. 1998. *Salamanders of the United States and Canada*. Smithsonian Institution Press, Washington, DC. 587 pp.