

Neil F. Hadley

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EDUCATION

<u>Institution</u>	<u>Degree</u>	<u>Year Granted</u>
Eastern Michigan University	B.A.	1963
University of Colorado	Ph.D.	1966

PROFESSIONAL EMPLOYMENT

<u>Employer</u>	<u>Title or Rank</u>	<u>Years</u>
Arizona State University	Assistant Professor	1966-1971
Arizona State University	Associate Professor	1971-1976
Arizona State University	Professor	1976-1995
Arizona State University	Assistant Vice President for Research	1988-1989
Arizona State University	Associate Dean, Graduate College	1989-1992
University of North Carolina at Wilmington	Dean, Graduate School and Research	1995-

PROFESSIONAL ORGANIZATIONS AND ACTIVITIES

Sigma Xi ASU Executive Council 1982-84;
Secretary 1984-86
President-Elect 1986-87
President 1987-88
Ecological Society of America
Secretary, Physiological Ecology Section 1973-76
Council Member-at-Large 1976-78
Program Committee, 2nd International Congress, 1978
Member, Editorial Board 1979-82
American Society of Zoologists (ASU Campus Representative)
Phi Sigma Honorary (President, Alpha Pi Chapter, 1965-66, U of Colo)
American Society of Arachnologists (Member, Editorial Board, 1981-)

National Council of University Research Administrators
Council of Graduate Schools
President, North Carolina Conference of Graduate Deans (1997-98)

RESEARCH GRANTS, FELLOWSHIPS, AWARDS

- 1963-1966 NDEA Pre-doctoral Fellowship in Physiological Ecology; Univ. of Colorado.
1964 NSF Summer Fellowship to Friday Harbor Marine Laboratory, Washington.
1967, 1968 Arizona State University Faculty Grant-in-Aid (Physiological adaptations of desert arthropods).
- 1971 NSF Grant (GB-31444): Effects of gamma radiation on the reproductive biology, physiological competitiveness, and bioenergetics of the beet armyworm, Spodoptera exiqua (Hubner). Two years, \$54,000.
- 1971 NSF Pre-doctoral Field Science Grant (Stam Zervanos) GB-27706: Thermoregulation and water relations of the collared peccary.
- 1972 NSF International Travel Grant (GB-57339): Attend INTECOL Symposium in Dubrovnik, Yugoslavia.
- 1972 NSF Pre-doctoral Field Science Grant (Justin Congdon) GB39852: Reproductive effort in parthenogenetic lizards of the genus Cnemidophorus.
- 1973 Arizona State University Faculty Grant-in-Aid (Energy metabolism and water relations in free-living arthropods).
- 1974 NSF Grant (BMS74-22129): Water and energy relations of desert arthropods. Two years, \$50,900.
- 1975 International Center of Insect Physiology and Ecology (ICIPE) Travel Grant: Attend "Armyworm Workshop" in Nairobi, Kenya.
- 1975 Arizona State University Faculty Instructional Improvement Award. Funded two month study with Dr. Larry L. Jackson, Chemistry Department, Montana State University, Bozeman.
- 1977 American Physiological Society Travel Grant: Attend 27th International Physiology Congress, Paris, France.
- 1978 NSF Grant (PCM77-23808): Cuticular permeability and the epicuticular lipid composition of arthropods. Three years, \$97,500.
- 1979 NSF Supplemental Funding (\$17,000). Compensation for salary reduction during sabbatical year.
- 1980 NSF Grant (PCM80-21566): Cuticular lipids and their role in controlling transpiration in terrestrial arthropods. Three years \$143,000.
- 1981 NSF Grant (PCM81-08861): Symposium on Research Developments in Arthropod Water Relations. Am. Soc. Zool. Meetings, Dallas, Texas, December, 1981. (Neil F. Hadley, organizer). \$5,000.
- 1982 Arizona State University Graduate College Distinguished Research Award.
- 1984 NSF Grant (PCM84-01552): Cuticular permeability of terrestrial arthropods. Three years, \$188,372.
- 1985 Nominated, Dean's Quality Teaching Award.
- 1986 University of Cape Town Post-doctoral Fellowship. R9,000.
- 1986 CSIR Visiting Professorship, University of Cape Town (declined).
- 1986 Nominated, Burlington Northern Foundation Faculty Achievement Award.
- 1986 American Association for the Advancement of Science Award for "Distinguished Contributions in the Field of Arid Zone Research".

- 1987 NSF Grant (DCB86-01817): Tiger beetle cuticle: a structure-function analysis. Two years, \$118,274.
- 1989 NSF Grant (DCB89-01356): Water and metabolic relations of terrestrial arthropods. Three years, \$165,515.
- 1993 ASU Faculty Research Award. \$5,000.
- 1993 Governor's Recognition Award
- 1994 College of Liberal Arts and Sciences Research Travel Award
- 1995 NIH Training Grant in Insect Science. Awarded to Center for Insect Science (UofA). Faculty contributor/participant. Five years, \$762,000.
- 1995 NSF Doctoral Dissertation Improvement Grant (\$10,000)
- 2002 NSF Grant: Developing Science Graduate Students into K-12 Classroom Resources. (Co-PI) Three years, \$1,041,000.

TEACHING ACTIVITIES

Formal courses taught:

BIO 100 The Living World
 ZOL 201-202 Human Anatomy and Physiology
 ZOL 360 Basic Physiology
 ZOL 460 Comparative Physiology
 ZOL 566 Environmental Physiology
 ZOL 591 Science Communication Skills

Seminar courses:

Energy budgets in animals: their measurement and meaning
 The adaptive role of lipids in biological systems
 Research developments in eco-physiology
 Great experiments in biology and medicine

SEMINAR PRESENTATIONS, INVITED PAPERS

University of Arizona (4)
 Northern Arizona University (2)
 Utah State University
 University of Colorado
 Oak Ridge National Laboratory
 Northwestern State University, Louisiana (Sigma Xi Address)
 INTECOL Symposium: Dubrovnik, Yugoslavia
 August Krogh Institute: Copenhagen, Denmark
 Hannah Research Institute: Ayr, Scotland
 ICIPE Workshop: Nairobi, Kenya
 Ecology/Meteorology Workshop: University of Michigan Biological Station
 U.S. Water Conservation Laboratory
 Isopod Biology Symposium: London, England
 California State University, Fullerton
 University of Kansas
 International Arachnology Congress, Exeter, England
 Texas Tech University
 International Entomology Congress Symposium, Kyoto, Japan

University of British Columbia
Arizona State University (Zoology Dept., Molecular Biology Group, Sigma Xi, Beta Beta Beta
Symposium, AIBS Symposium, Exer. Sci.)
University of Hawaii
University of Nevada, Las Vegas
University of Nevada, Reno
Montana State University
Penn State University
University of Calgary
Palm Springs Desert Museum
University of Auckland, Auckland, New Zealand
University of New England, Armidale, Australia
Western State College, Colorado
Center for Insect Science, Tucson
Mississippi State University
University of Arkansas
Clemson University
Denison University
Virginia Tech
North Carolina State University
Papers also presented at meetings of the Ecological Society of
America, American Society of Zoologists, Society of Ichthyologists
and Herpetologists, Southwestern Naturalists, American
Physiological Society, Entomological Society of America, American
Arachnologists Society, and International Entomology Congress.

COMMITTEE MEMBERSHIP (ASU)

Departmental

Graduate Research Committee (Chair)
Advisory Committee
Seminar Committee
Graduate Assistant Committee
Maytag Professor Committee
Graduate Committee (Chair)
Space Committee
Molecular Biology Committee
Personnel Committee (Chair)
Qualifying Exam Committee
Physiology Search Committee (Chair)
Search Committee (Vertebrate Ecologist)
Search Committee (Department Chair)
Search Committee (Evolutionary Geneticist)
Physiology Examination Committee
Animal Care Committee (Chair)
Undergraduate Programs Committee
Septennial Review Committee

College and University

Curriculum Committee (1968-70)
University Recreation Committee (1971-74)
Dean's Search Committee, College of Liberal Arts (1975-76)
Departmental Representative, Faculty Senate (1976-79; 1989-91)
Committee-on-Committees, Faculty Senate (1977-79)
Faculty Grant-in-Aid Review Committee (1976-77)
Writing Across the Curriculum Committee (1985-86)
Secretary, Faculty Senate (1987-88)
Executive Committee (Faculty Senate) (1987-88)
President's Consultative Committee (1987-88)
University Services Committee (1989-90)
Committee on Undergraduate Education (1992-93)
University By-Laws Committee (1992-93)
Enrollment Task Force Committee (1992-93)
Council for Research and Creative Activity (1992-93)
Academic Computing Advisory Committee (1992-93)
Subcommittee on Graduate Education Initiatives (1993-94)

SPECIAL TRAINING, POST-DOCTORAL EXPERIENCE

Audited courses in biometry and computer programming while an Assistant Professor.
Participated in AEC Summer Program in Radiation Biology at Oak Ridge National Laboratory.
Spent two months of sabbatical at Hannah Research Institute, Ayr, Scotland, where I acquired basic techniques in lipid chemistry from Dr. W.W. Christie.
Spent one month with Dr. Larry L. Jackson, Chemistry Department, Montana State University, learning additional lipid techniques involving hydrocarbon separation and analysis.
Spent one semester studying cave ecosystems and the ecophysiology of their fauna on the Hawaiian Islands.
Spent two months studying the thermal biology and water relations of tiger beetles and wetas in New Zealand.
Attended workshop for new graduate college deans (Toronto, 1989).
Attended Hughes Program Teaching Strategies workshop (1993)

PROFESSIONAL ACTIVITIES

In addition to membership in the societies listed, I have been a regular reviewer of scientific articles for the following journals: *Science*, *Copeia*, *J. Arachnology*, *Ecology*, *Physiological Zoology*, *J. Thermal Biology*, *Southwestern Naturalist*, *American Midland Naturalist*, *J. Insect Physiology*, *J. Comparative Physiology*, and the *South African J. Science*. I have also reviewed numerous NSF grant proposals. As Secretary and Program Chairman for the Physiological Ecology Section of the Ecological Society of America, I was responsible for producing and circulating the Section

newsletter, organizing symposia and business meetings, and electing new officers. I was on the AEC site evaluation team (1975) that visited the Lab of Nuclear Medicine and Radiation Biology in Los Angeles and the Nevada Test Site. I have provided peer reviews in the promotion of Dr. Bernd Heinrich, University of California, Berkeley, Dr. Larry L. Jackson, Montana State University, Dr. William Anderson, University of Florida, Gainesville, Dr. Michael Warburg, Technical University, Haifa, Israel, Dr. Harvey Lillywhite, University of Florida, Gainesville, Dr. Gary Polis, Vanderbilt University, Nashville, Yousef Steinberger, Bar Ilan University, Israel, Dr. Shirley Hanrahan, University of Johannesburg and Timothy Bradley, University of California, Irvine and Roger Farley, University of California, Riverside. I have also served as the external examiner for doctoral candidates at the University of New South Wales and the University of Cape Town (3).

GRADUATE STUDENT SUPERVISION (THESIS/DISSERTATION ADVISOR)

<u>Student</u>	<u>Degree</u>	<u>Date</u>	<u>Thesis/Dissertation Title</u>
Burns, Thomas A.	Ph.D.	1969	Ecology and Physiology of <i>Sceloporus jarrovi</i> in the Graham Mountains, Arizona
Ahearn, Gregory A.	Ph.D.	1970	The Environmental Physiology of Desert Tenebrionid Beetles
Zervanos, Stamatis M.	Ph.D.	1972	Thermoregulation and Water Relations of the Collared Peccary (<i>Tayassu tajacu</i>)
Chilton, Beverly S.	M.S.	1973	Effects of Gamma Radiation on the Ultrastructure and Acid Phosphatase Activity of the Mid-gut of Adult Beet Armyworms, <i>Spodoptera exigua</i> (Hubner)
Hoppe, Kenneth T.	M.S.	1974	Changes in Lipid Content and Fatty Acid Composition During Embryogenesis of the Beet Armyworm, <i>Spodoptera exigua</i> (Hubner)
Hill, Ronald D.	Ph.D.	1976	Population Ecology and Adaptational Biology of <i>Paruroctonus mesaensis</i> (Scorpionida: Vaej.)
Bohm, Bruce C.	M.S.	1976	Water Loss Rates of Free-roaming Desert Tenebrionids (<i>Eleodesarmata</i> LeConte)
King, William W.	Ph.D.	1976	Energy Metabolism and Body Water Turnover Rates of Free-living Scorpions (<i>Hadrurus</i>)
Toolson, Eric C.	Ph.D.	1976	Cuticular Permeability and Epicuticular Lipid Composition in Three Arizona Scorpion Species

Pinter, Paul J.	Ph.D. 1976	Microclimatic Factors Affecting Development and Survival of the Beet Armyworm, <i>Spodoptera exigua</i> Hb., in Arizona
Congdon, Justin	Ph.D. 1977	Energetics of the Montane Lizard <i>Sceloporus jarrovi</i> : A Measurement of Reproductive Effort
Burkhart, Jeffrey	Ph.D. 1977	Ecological Energetics of the Alkali Grasshopper (<i>Aconia integra</i>)
Massion, Dennis	Ph.D. 1980	An Altitudinal Comparison of Water and Metabolic Relations in Two Acridid Grasshoppers (Orthoptera)
Hall, Richard L.	Ph.D. 1981	Origins of Cuticular Lipids in the Scorpion <i>Paruroctonus mesaensis</i>
Quinlan, Michael	M.S. 1982	Water Relations of Two Species of Isopods (<i>Porcellio laevis</i> and <i>Porcellionides pruinosus</i>)
Hendricks, Greg	M.S. 1983	Fine Structure of the Cuticle of the Common House Cricket <i>Acheta domestica</i>
Anderssohn, Ann Marie	M.S. 1987	The Cuticular Hydrocarbons of <i>Acheta domestica</i> : Regional Differences and Their Role in Reducing Water Permeability
Quinlan, Michael	Ph.D. 1992	Cuticular Permeability of the House Cricket and Black Widow Spider
Roberts, Steven	Ph.D. 1998	Thermoregulatory Mechanisms and Their Functional Consequences in Flying Bees (Co-advisor with Jon Harrison)

BIBLIOGRAPHY

Journal Articles

- Williams, S.C. and N.F. Hadley. 1967. Scorpions of the Puerto Penasco area (Cholla Bay), Sonora, Mexico, with description of *Vejovis baergi*, new species. Calif. Acad. Sci. 35:103-116.
- Hadley, N.F. and S.C. Williams. 1968. Surface activities of some North American scorpions in relation to feeding. Ecology 49:726-734.
- Hadley, N.F. and T.A. Burns. 1968. Intraspecific comparison of the blood properties of the side-blotched lizard, *Uta stansburiana*. Copeia (1968):737-740.
- Hadley, N.F. and R.D. Hill. 1969. Oxygen consumption of the scorpion *Centruroides sculpturatus*. Comp. Biochem. Physiol. 29:217-226.
- Hadley, N.F. 1969. Microenvironmental factors influencing the nesting sites of some subalpine fringillid birds in Colorado. Arctic and Alpine Research 1:121-126.
- Hadley, N.F. 1969. Breeding biology of the Gray-headed Junco, *Junco caniceps* (Woodhouse), in the Colorado Front Range. The Colorado Field Ornithologist (Winter):15-21.
- Ahearn, G.A. and N.F. Hadley. 1969. The effects of temperature and humidity on water loss in two desert tenebrionid beetles, *Eleodes armata* and *Cryptoglossa verrucosa*. Comp. Biochem. Physiol. 30:739-749.
- Hadley, N.F. and L.E. Draper. 1969. A method for determining anaerobic pH values of semi-micro samples. Ariz. Acad. Sci. 5:248-250.
- Hadley, N.F. 1970. Micrometeorology and energy exchange in two desert arthropods. Ecology 51:434-444.
- Hadley, N.F. 1970. Water relations of the desert scorpion, *Hadrurus arizonensis*. J. Exp. Biol. 53:547-558.
- Hadley, N.F. 1971. Water uptake by drinking in the scorpion *Centruroides sculpturatus* Buthidae. Southwest. Nat. 15(4): 504-505.
- Hadley, N.F. 1972. Desert species and adaptation. Am. Sci. 60(3):338-347.
- Chilton, B.S. and N.F. Hadley. 1972. Further investigations on the respiratory metabolism of adult beet armyworms, *Spodoptera exigua* (Hubner) (Lepidoptera: Noctuidae). Ariz. Acad. Sci. 7(3):139-142.
- Hadley, N.F. 1973. Respiratory metabolism of sterile F₁ beet armyworm moths, *Spodoptera exigua* (Hubner) (Lepidoptera: Noctuidae). Comp. Biochem. Physiol. 44(1A):235-237.

- Tinkle, D.W. and N.F. Hadley. 1973. Reproductive effort and winter activity in the viviparous montane lizard *Sceloporus jarrovi* Copeia (1973):272-277.
- Zervanos, S.M. and N.F. Hadley. 1973. Adaptational biology and energy relationships of the collared peccary (*Tayassu tajacu*). Ecology 54(4):759-774.
- Toolson, E.C. and N.F. Hadley. 1974. Thermal tolerance of beet armyworm moths, *Spodoptera exigua*: effects of age, temperature acclimation, and gamma radiation. J. Environ. Entomol. 3(2):290-294.
- Hadley, N.F. and W.W. Christie. 1974. The lipid composition and triglyceride structure of eggs and fat-bodies of the lizard *Sceloporus jarrovi*. Comp. Biochem. Physiol. 48B:275-284.
- Hadley, N.F. 1974. Adaptational biology of desert scorpions. J. Arachnol. 2(1):11-23.
- Tinkle, D.W. and N.F. Hadley. 1975. Lizard reproductive effort: caloric estimates and comments on its evolution. Ecology 56(2):427-434.
- Pinter, P.J., N.F. Hadley, and J.H. Lindsay. 1975. Alfalfa crop micrometeorology and its relation to insect pest biology. J. Environ. Entomol. 4(5):153-162.
- Hoppe, K.T., N.F. Hadley, and R.N. Trelease. 1975. Changes in lipid and fatty acid composition of eggs during development of the beet armyworm, *Spodoptera exigua*. J. Insect Physiol. 21(8):1427-1430.
- Ahearn, G.A. and N.F. Hadley. 1976. Water transport in desert scorpion ileum: functional roles of luminal sodium and potassium. Nature 261:66-68.
- Hadley, N.F. and D.C. McCaleb. 1977. Changes in lipid composition of oocytes during vitellogenesis in the parthenogenetic lizard *Cnemidophorus uniparens* (Reptilia, Lacertilia, Teiidae). J. Herpetol. 11(4):411-414.
- Bohm, B.C. and N.F. Hadley. 1977. Tritium determined water flux in the free-roaming desert tenebrionid beetle, *Eleodes armata*. Ecology 58(2):407-414.
- Hadley, N.F. and L.L. Jackson. 1977. Chemical composition of the epicuticular lipids of the scorpion, *Paruroctonus mesaensis*. Insect Biochem. 7:85-89.
- Hadley, N.F. 1977. Epicuticular lipids of the desert tenebrionid beetle, *Eleodes armata*: seasonal and acclimatory effects on chemical composition. Insect Biochem. 7(3):277-283.
- Toolson, E.C. and N.F. Hadley. 1977. Cuticular permeability and epicuticular lipid composition in two Arizona vejovid scorpions. Physiol. Zool. 50:323-330.
- Ahearn, G.A. and N.F. Hadley. 1977. Water transport in perfused scorpion ileum. Am. J. Physiol. 233(5):R198-207.
- Congdon, J.D., L.J. Vitt, and N.F. Hadley. 1978. Parental investment: comparative reproductive energetics in bisexual and unisexual lizards, Genus *Cnemidophorus*. Am. Nat. 112:509-521.

- Hadley, N.F. 1978. Cuticular permeability of desert tenebrionid beetles: correlations with epicuticular hydrocarbon composition. *Insect Biochem.* 8:17-22.
- Ahearn, G.A., O. Koosawad, and N.F. Hadley. 1978. Differential rectifying properties of three arthropod intestines to osmotic water flow. *Comp. Biochem. Physiol.* 61A:183-186.
- Hadley, N.F. 1979. Wax secretion and color phases of the desert tenebrionid beetle, *Cryptoglossa verrucosa* (LeConte). *Science* 203:367-369.
- King, W.W. and N.F. Hadley. 1979. Water flux and metabolic rates of free-roaming scorpions using the doubly-labelled water technique. *Physiol. Zool.* 53:176-189.
- Toolson, E.C. and N.F. Hadley. 1979. Seasonal effects on cuticular permeability and epicuticular lipid composition in *Centruroides sculpturatus* Ewing 1928 (Scorpionides: Buthidae). *J. Comp. Physiol.* 129:319-325.
- Filshie, B.K. and N.F. Hadley. 1979. Fine structure of the cuticle of the desert scorpion, *Hadrurus arizonensis*. *Tissue and Cell* 11:249-262.
- Hadley, N.F. and B.K. Filshie. 1979. Fine structure of the epicuticle of the desert scorpion, *Hadrurus arizonensis*, with reference to location of lipids. *Tissue and Cell* 11:263-275.
- Hadley, N.F. 1979. Recent developments in ecophysiological research on desert arthropods. *J. Arid Environ.* 2:211-218.
- Hadley, N.F. 1980. Cuticular lipids of adults and nymphal exuviae of the desert cicada, *Diceroprocta apache* (Homoptera, Cicadidae). *Comp. Biochem. Physiol.* 65B:549-553.
- Jackson, L.L., N.F. Hadley, and G.J. Blomquist. 1980. Epicuticular lipids of the desert tenebrionid beetle, *Eleodes armata*: identification of the branched hydrocarbons. *J. Insect Biochem.* 10:399-402.
- Hadley, N.F. and R.L. Hall. 1980. Cuticular lipid biosynthesis in the scorpion, *Paruroctonus mesaensis*. *J. Exp. Zool.* 212(3):373-379.
- Hadley, N.F. and G.N. Louw. 1980. Cuticular hydrocarbons and evaporative water loss in two tenebrionid beetles from the Namib Desert. *S. Afr. J. Sci.* 76:298-301.
- Hadley, N.F. 1980. Surface waxes and integumentary permeability. *Am. Sci.* 68:546-553.
- Hadley, N.F. 1981. Cuticular lipids of plants and arthropods: a comparison of their structure, composition, and waterproofing function. *Biol. Rev. (Cambridge)* 56:23-47.
- Hadley, N.F., G.A. Ahearn, and F.G. Howarth. 1981. Water and metabolic relations of cave-adapted and epigeal lycosid spiders in Hawaii. *J. Arachnol.* 9:215-222.
- Hadley, N.F., G.J. Blomquist, and U.N. Lanham. 1981. Cuticular hydrocarbons of four species of Colorado hymenoptera. *Insect Biochem.* 11:173-177.

- Hadley, N.F. and S.R. Szarek. 1981. Productivity of desert ecosystems: producer, consumer, and decomposer organisms. *BioScience* 31:747-753.
- Congdon, J.D., L.J. Vitt, and N.F. Hadley. 1981. Reply to Schall. *Am. Nat.* 117:217-222.
- Hadley, N.F. 1981. Fine structure of the cuticle of the black widow spider with reference to surface lipids. *Tissue and Cell* 13:805-817.
- Hadley, N.F., J.L. Stuart, and M. Quinlan. 1982. An air-flow system for measuring total transpiration and cuticular permeability in arthropods. Studies on the centipede, *Scolopendra polymorpha*. *Physiol. Zool.* 55(3):393-404.
- Hadley, N.F. 1982. Cuticle ultrastructure with respect to the lipid waterproofing barrier. *J. Exp. Zool.* 222:239-248.
- Quinlan, M.C. and N.F. Hadley. 1982. A new system for concurrent measurement of respiration and water loss in arthropods. *J. Exp. Zool.* 222:255-263.
- Hadley, N.F. and M. Quinlan. 1982. Simultaneous measurement of water loss and carbon dioxide production in the cricket *Acheta domesticus*. *J. Exp. Biol.* 101:343-346.
- Crowe, J.H. and N.F. Hadley. 1982. Biography: Eric B. Edney. *J. Exp. Zool.* 222:203.
- Hall, R.L. and N.F. Hadley. 1982. Incorporation of synthesized and dietary hydrocarbons into the cuticle and hepatopancreas of the scorpion *Paruroctonus mesaensis*. *J. Exp. Zool.* 224:195-203.
- Hendricks, G.M. and N.F. Hadley. 1983. Structure of the cuticle of the common house cricket *Acheta domesticus* with reference to the location of lipids. *Tissue and Cell* 15:761-779.
- Quinlan, M.C. and N.F. Hadley. 1983. Water relations of the terrestrial isopods *Porcellio laevis* and *Porcellionides pruinosus* (Crustacea, Oniscoidea). *J. Comp. Physiol.* 151:155-161.
- McClain, E., M.K. Seely, N.F. Hadley, and V. Gray. 1985. Wax blooms in tenebrionid beetles of the Namib Desert: correlations with environment. *Ecology* 66:112-118.
- Hadley, N.F. and G.M. Hendricks. 1985. Cuticular microstructures and their relationship to structural color and transpiration in the terrestrial isopod *Porcellionides pruinosus*. *Can. J. Zool.* 63:649-656.
- Hadley, N.F. and D.D. Massion. 1985. Oxygen consumption, water loss, and cuticular lipids of high and low elevation populations of the grasshopper *Aeropedellus clavatus*. *Comp. Biochem. Physiol.* 80A:307-311.
- Louw, G.N. and N.F. Hadley. 1985. Water economy of the honeybee: a stoichiometric accounting. *J. Exp. Zool.* 235:147-150.
- Hadley, N.F., J. Machin, and M.C. Quinlan. 1986. Cricket cuticle water relations: permeability and passive determinants of cuticular water content. *Physiol. Zool.* 59: 84-94.

- Hadley, N.F. 1986. The arthropod cuticle. *Scientific American* 255:104-112.
- Hadley, N.F. and M.R. Warburg. 1986. Water loss in three species of xeric-adapted isopods: correlations with cuticular lipids. *Comp. Biochem. Physiol.* 85A:669-672.
- Alcock, J. and N.F. Hadley. 1987. Tests of alternative hypotheses for assortative mating by size: a comparison of two meloid beetles (Coleoptera: Meloidae). *J. Kan. Ent. Soc.* 60:41-50.
- Hadley, N.F. and M.C. Quinlan. 1987. Permeability of arthrodival membrane: a first measurement using *in vivo* techniques. *Experientia* 43:164-166.
- Hadley, N.F. and T.D. Schultz. 1987. Water loss in three species of tiger beetles (*Cicindela*): correlations with epicuticular hydrocarbons. *J. Insect Physiol.* 33:677-682.
- Hadley, N.F. and G.M. Hendricks. 1987. X-ray microanalysis of the cuticle surface of the terrestrial isopod *Porcellionides pruinosus*. *Can. J. Zool.* 65:1218-1223.
- Anderssohn, A.M. and N.F. Hadley. 1987. Regional variation in cuticular hydrocarbon composition in the common house cricket, *Acheta domesticus*. *Comp. Biochem. Physiol.* 88B:875-879.
- Schultz, T.D. and N.F. Hadley. 1987. Microhabitat segregation in response to abiotic factors in co-occurring tiger beetle species, *Cicindela oregona* and *Cicindela tranquebarica*. *Oecologia* 73:363-370.
- Toolson, E.C. and N.F. Hadley. 1987. Energy-dependent facilitation of transcuticular water flux contributes to evaporative cooling in the Sonoran Desert cicada, *Diceroprocta apache* (Homoptera: Cicadidae). *J. Exp. Biol.* 131:439-444.
- Schultz, T.D. and N.F. Hadley. 1987. Structural colors of tiger beetles and their role in heat transfer through the integument. *Physiol. Zool.* 60:737-745.
- Byrne, D.N. and N.F. Hadley. 1988. Particulate surface waxes of whiteflies: morphology, composition and "waxing" behavior. *Physiol. Entomol.* 13:267-276.
- Hadley, N.F., T.D. Schultz, and A. Savill. 1988. Spectral reflectances of three tiger beetle subspecies (*Neocicindela perhispidata*): correlations with their habitat substrate. *New Zealand J. Zoology* 15:343-346.
- Hadley, N.F., L.L. Jackson, and J. Leader. 1988. Cuticular hydrocarbons of the alpine weta *Hemideina maori* (Orthoptera, Stenopelmatidae). *Comp. Biochem. Physiol.* 91B:685-689.
- Hadley, N.F. 1989. Structure of the cuticle of the alpine weta *Hemideina maori* (Orthoptera: Stenopelmatidae). *Int. J. Insect Morph. Embryol.* 18:1-11.
- Hadley, N.F., E.C. Toolson, and M.C. Quinlan. 1989. Regional differences in cuticular permeability in the desert cicada *Diceroprocta apache*: implications for evaporative cooling. *J. Exp. Biol.* 141: 219-230.

- Hadley, N.F. 1989. Lipid water barriers in biological systems. *Prog. Lipid Res.* 28:1-33.
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