

## ***CURRICULUM VITAE***

Bernd Heinrich

**2008**

### **PRESENT ADDRESS**

Department of Biology  
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### **PERSONAL**

Born: April 19, 1940; Bad Polzin, Poland/Germany

Naturalized U.S. citizen: Skowhegan, Maine, 1958

Married to: Rachel Smolker

Children: Erica, Stuart, Eliot and Lena

### **EDUCATION**

B.A. (Zoology) 1964 University of Maine, Orono

M.S. (Zoology) 1966 University of Maine, Orono

Ph.D. (Zoology) 1970 University of California, Los Angeles  
(awarded "with distinction")

Postdoctoral 1970 University of California, Los Angeles

### **HONORS**

Guggenheim Fellow, 1976-77

Harvard Fellow, 1976-77

University of Vermont Scholar in the Biological Sciences, 1985

Alexander von Humboldt Senior Scientist Fellowship Award, 1988-89 (Federal Republic of Germany)

Lady Davis Fellowship (Jerusalem, Israel) 1992

L.L. Winship Book Award (For In a Patch of Fireweed), 1984.

Burroughs Writing Award (For An Owl in the House), ~ 1991.

Rutstrom Authorship Award for Conservation and Environmental Writing  
(For A Year in the Maine Woods), 1996.

Sigma Xi Lecturer, 1995-1997

Outstanding Science Trade Book for Children (By Children's Books Council)

Member Vermont Academy of Science and Engineering-1997.

Member Vermont Academy of Arts and Sciences- 1998.

Franklin Fairbanks Award for contributions of Vermont Culture- 1997.

New England Bookseller's Award for Nonfiction for 1998.

John Burroughs Medal for Nature Writing (for Mind of the Raven) 2000

Honorary Doctorate, University of Maine, Farmington – 1999

Honorary Master of Philosophy & Human Biology – College of the Atlantic, 2006

Honorary Doctorate, Unity College, Maine 1986 and-2000!

Honorary Doctorate of Humane Letters, St. Michaels College, 2008

National Academy of Arts and Sciences. 2004.

Maine Running Hall of Fame, 1996.

Maine Sportsmen's Hall of Fame, 2000.

American Ultrarunning Hall of Fame, 2008

Art Exhibits: "The Naturalist as Artist :the Artist as Naturalist". Fleming Museum,  
Burlington, VT. and the L C Bates Museum , Good Will- Hinckley School in  
Fairfield, Maine. 2005

### **TEACHING EXPERIENCE**

Assistant Professor, University of California, Berkeley, 1971-75

Professor, University of California, Berkeley, 1978-1981

Professor, University of Vermont, 1981-2003

Professor Emeritus, 2004-

Presently teaching Winter Ecology , research with ravens, writing & drawing

## RESEARCH PUBLICATIONS

- Heinrich B. 1961. Weasels in Farmington. *Maine Field Naturalist* 17:24-25.
- Cook, J.R. and B. Heinrich. 1965. Glucose vs. acetate metabolism in Euglena. *J. Protoz.* 12:581-584.
- Heinrich, B. and J. R. Cook. 1967. Studies on the respiratory physiology of Euglena gracilis cultured on acetate or glucose. *J. Protoz.* 14:548-553
- Cook, J. R. and B. Heinrich. 1968. Unbalanced respiratory growth of Euglena. *J. Gen.Microbiol.* 53:237-251.
- Heinrich, B. 1970. Thoracic temperature stabilization in a free-flying moth. *Science* 168: 580-582.
- Heinrich, B. 1970. Nervous control of the heart during thoracic temperature regulation in a sphinx moth. *Science* 169:606-607.
- Heinrich, B. 1971. The effect of leaf geometry on the feeding behavior of the caterpillar of Manduca sexta (Sphingidae). *Anim. Behaviour* 19:119-124.
- Heinrich, B. 1971. Temperature regulation of the sphinx moth, Manduca sexta. I. Flight energetics and body temperature during free and tethered flight. *J. Exp. Biol.* 54: 141-152.
- Heinrich, R. 1971. Temperature regulation of the sphinx moth, Manduca sexta. II. Regulation of heat loss by control of blood circulation. *J. Exp. Biol.* 54:153-166.
- Heinrich, B. and G. A. Bartholomew. 1971. An analysis of preflight warm-up in the sphinx moth, Manduca sexta. *J. Exp. Biol.* 55:223-239.
- Heinrich, B. 1972. Temperature regulation in bumblebees, Bombus vagans: a field study. *Science* 175:185-187.
- Heinrich, B. 1972. Energetics of temperature regulation and foraging in a bumblebee, Bombus terricola Kirby. *J. Comp. Physiol.* 77:49-64.
- Heinrich, B. 1972. Patterns of endothermy in bumblebee queens, drones and workers. *J. Comp. Physiol.* 77:65-79.
- Heinrich, B. and P. H. Raven. 1972. Energetics and pollination ecology. *Science* 176:597-602.
- Kammer, A. E. and B. Heinrich. 1972. Neural control of bumblebee fibrillar muscles during shivering. *J. Comp. Physiol.* 78:337-345.
- Heinrich, B. 1972. Thoracic temperature of butterflies in the field near the equator. *Comp. Biochem. Physiol.* 43A:459-467.
- Heinrich, B. 1972. Physiology of brood incubation in the bumblebee queen, Bombus vosnesenskii. *Nature* 239:223-225.
- Heinrich, B. and T. M. Casey. 1973. Metabolic rate and endothermy in sphinx moths. *J. Comp. Physiol.* 82:195-206.
- Bartholomew, G. A. and B. Heinrich. 1973. A field study of flight temperature in moths in relation to body weight and wing loading. *J. Exp. Biol.* 58:123-135.
- Heinrich, B. and A. Kammer. 1973. Activation of the fibrillar muscles in the bumblebee during warm-up, stabilization of thoracic temperature and flight. *J. Exp. Biol.* 58:677-688.
- Heinrich, B. 1974. Thermoregulation in bumblebees. I. Brood incubation by Bombus vosnesenskii queens. *J. Comp. Physiol.* 88:129-140.
- Heinrich, B. 1974. Pheromone induced brooding behavior in Bombus vosnesenskii and B. edwardsii (Hymenoptera: Bombidae). *J. Kansas Ent. Soc.* 47:396-404.
- Heinrich, B. 1974. Thermoregulation in endothermic insects. *Science* 185:747-756.
- Kammer, A. E. and B. Heinrich. 1974. Metabolic rates related to muscle activity in

- bumblebees. *J. Exp. Biol.* 61:219-227.
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- Heinrich, B. and C. Pantle. 1975. Thermoregulation in small flies (*Syrphus* sp.): Basking and shivering. *J. Exp. Biol.* 62:599-610.
- Heinrich, B. 1975. Bee flowers: A hypothesis on flower variety and blooming times. *Evolution* 29:325-334.
- Heinrich, B. 1975. Energetics of pollination. *Ann. Rev. Ecol. & Syst.* 6:139-170.
- Heinrich, B. 1976. Foraging specializations of individual bumblebees. *Ecol. Mon.* 46:105-128.
- Oster, G. and B. Heinrich. 1976. Why do bumblebees "major"? A mathematical model. *Ecol. Mon.* 46:128-133.
- Heinrich, B. 1976. Heat exchange in relation to blood flow between thorax and abdomen in bumblebees. *J. Exp. Biol.* 64:561-585.
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- Heinrich, B. 1976. Flowering phenologies: bog, woodland, and disturbed habitats. *Ecol.* 57: 890-899.
- Heinrich, B. 1977. Why have some animals evolved to regulate a high body temperature? *Am. Naturalist.* 111:623-640.
- Heinrich, B., P. Mudge, and P. Deringis. 1977. A laboratory analysis of flower constancy in foraging bumblebees: *Bombus ternarius* and *B. terricola*. *Behav. Ecol. and Sociobiol.* 2:247-266.
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- Heinrich, B. and G. A. Bartholomew. 1978. Roles of endothermy and size in inter- and intraspecific competition for elephant dung in an African dung beetle, *Scarabaeus laevistriatus*. *Physiol. Zool.* 52:484-494.
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- Heinrich, B. 1979. "Majoring" and "minoring" by foraging bumblebees, *Bombus vagans*: An experimental analysis. *Ecology* 60:245-255.
- Waddington, K. D. and B. Heinrich. 1979. The foraging movements of bumblebees on vertical "inflorescences": An experimental analysis. *J. Comp. Physiol.* 134:113-117.
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- Heinrich, B. 1979. Foraging strategies of caterpillars: Leaf damage and possible predator avoidance strategies. *Oecologia* 40:325-337.
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- Heinrich, B. 1981. The mechanisms and energetics of honeybee swarm temperature regulation. J. Exp. Biol. 91:25-55.
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- Waddington, K. D., T. Allen, and B. Heinrich. 1981. Floral preferences of bumblebees (Bombus edwardsii) in relation to variable vs. constant rewards. Animal Behaviour 29:779-784.
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- Heinrich, B. and S. L. Collins. 1983. Caterpillar leaf damage and the game of hide-and-seek with birds. Ecology 64:592-602.
- Vogt, F. D. and B. Heinrich. 1983. Thoracic temperature variations in the onset of flight in dragonflies (Odonata: Anisoptera). Physiol. Zool. 56:236-241.
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- Heinrich, B. and M. Heinrich. 1983. Size and caste in temperature regulation by bumblebees. Physiol. Zool. 56:552-562.
- Heinrich, B. and M. Heinrich. 1983. Torpor in foraging workers and drones of the bumblebee, Bombus terricola. Physiol. Zool. 56:563-567.
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- Heinrich, B. and E. McClain. 1986. "Laziness" and hypothermia as a foraging strategy in lower scarabs (Coleoptera:Scarabaeidae). Physiol. Zool. 59:273-282.
- Heinrich B. 1986. Comparative thermoregulation of four montane butterflies of different mass. Physiol. Zool. 59:616-626.
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- Kukal, O., B. Heinrich and J. Duman. 1988. Behavioral thermoregulation in the freeze-tolerant Arctic caterpillar, Gynaephora groenlandica. J. Exp. Biol. 138:181-193.
- Heinrich, B. 1988. Raven tool use? Condor 90:270-271.
- Heinrich, B. 1988. Winter foraging at carcasses by three sympatric corvids, with emphasis on recruitment by the raven, Corvus corax. Behav. Ecol. & Sociobiol. 23:141-156.
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- Heinrich, B. and J. Marzluff. 1991. Do common ravens yell because they want to attract others? Behav. Ecol. & Sociobiol. 28:13-21.
- Esch, H., F. Goller and B. Heinrich. 1991. How do bees shiver? Naturwissenschaften 78:325-328.
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- Heinrich, B. and D. F. Vogt. 1993. Abdominal temperature regulation by Arctic bumblebees. Physiol. Zool. 66:257-269.
- Cotterman, V. and B. Heinrich. 1993. A large temporary raven roost. The Auk 110:395.
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- Heinrich, B. 1994. When is the common raven black? Wilson Bull. 106(3):571-572.
- Heinrich, B. 1994. Does the early bird get (and show) the meat? The Auk 111:764-769.
- Heinrich, B. 1995. Neophilia and exploration in juvenile common ravens, Corvus corax. Anim. Behaviour 50:695-704.
- Heinrich, B. and R. Bell. 1995. Winter food of a small insectivorous bird, the Golden-crowned Kinglet. Wilson Bulletin 107(3):558-561.
- Heinrich, B., J. Marzluff and W. Adams. 1996. Fear and food recognition in naive common ravens. The Auk 112 (2):499-503.
- Marzluff, J. M., B. Heinrich and C. S. Marzluff. 1996. Roosts are mobile information centers. Anim. Behaviour 51:89-103.
- Heinrich, B. 1995. An experimental investigation of insight in common ravens, Corvus corax. The Auk 112: 994-1003.
- Ybarrondo, B.A. and B. Heinrich. 1996. Thermoregulation and response to competition in the African Dung Ball-Rolling Beetle Kheper nigroaeneus (Coleoptera: Scarabaeidae). Physiol. Zool 69:35-48.
- Vogt, D. F., B. Heinrich, T. O. Dabolt and H. L. McBath. 1994. Ovary development and Colony founding in subarctic and temperate-zone bumblebee queens. Can. J. Zoology 72:1551-1556.
- Vogt, D. F., B. Heinrich, and R. C. Plowright. 1998. Ovarial development in bumblebee queens

- : The influence of abdominal temperature and food availability. *Can. J. Zool.* 76: 2026-2030.
- Heinrich, B., C.C. Joerg, S.S. Madden and E.W. Sanders Jr. 1997. Black-capped chickadees and Red-breasted nuthatches weigh sunflower seeds. *The Auk* 114: 298-299.
- Heinrich, B. and J. Pepper. 1998. Influence of competitions on caching behavior in the common raven, *Corvus corax*. *Anim. Behav.* 56: 1083-1090.
- Heinrich, B. 1999. Sociobiology of ravens: conflict and cooperation. *Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin* 37: 13-22.
- Heinrich, B. 1999. Planning to facilitate caching: Possible suet cutting by a common raven. *Wilson Bull.* 111: 276-278.
- Stahler, D.R., B. Heinrich and D.W. Smith. 2002. The raven's behavioral association with wolves. *Animal Behaviour* 64:283-290.
- Bugnyar, T. and B. Heinrich. 2003. Hiding in food-caching ravens, *Corvus corax*. *Rev.Ethol.Suppl.*5, 57.
- Heinrich, B. 2004.Overnighting of Golden-crowned kinglets in winter. *Wilson Bull.*115:123-124.
- Bugnyar, T., M. Stoewe and B. Heinrich. 2004. Ravens, *Corvus corax*, follow gaze direction of humans around obstacles . *Proc.R. Soc. Lond. B* 271: 1331-1336
- Woods, W. A. Jr, B. Heinrich and R.D. Stevenson. 2005. Honeybee flight metabolism: does it depend upon air temperature? *J. Exp. Biol.* 208 (6):1161-1173.
- Heinrich, B. and T. Bugnyar. 2005. Testing problem solving in ravens: string-pulling to reach food. *Ethology* 111: 962-976.
- Bugnyar, T. and B. Heinrich, 2005. Food-storing ravens, *Corvus corax*, differentiate between knowledgeable and ignorant competitors . *Proc. R. Soc B* 272: 1641-1646.
- Bugnyar, T. and B. Heinrich. 2006. Pilfering ravens, *Corvus corax*, adjust their behaviour to social context and identity of competitors. *Animal Cognition* 9: 369-376.
- Bugnyar, T., M. Stoewe and B. Heinrich. 2007. The ontogeny of caching behaviour in ravens, *Corvus corax*. *Animal Behaviour* 74: 757-767.
- Heinrich, B. and T. Bugnyar. 2007. Just how smart are ravens? *Scientific American* 296 (4): 64-71.
- Stoewe, M., T. Bugnyar, B. Heinrich and K. Kotrschal. 2006. Effect of group size on approach to novel objects in ravens (*Corvus corax*). *Ethology* 112: 1079-1088.
- Heinrich, B. 2007. The origin of insect thermoregulation. *J. Exp. Biol.* 210: 177-179.
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- Bugnyar, T. Schwab, C., Schloegl, K., Kotrschal, K. and B. Heinrich. Ravens judge others' pilfer dispositions through play-caching. *Current Biology* (in press)

#### **SEMI-POPULAR AND POPULAR WRITING**

- Heinrich, B. and G. A. Bartholomew. 1972. Temperature control in flying moths. *Sci. Amer.* (June) 226:71-77.
- Heinrich, B. 1973. The energetics of the bumblebee. *Sci. Amer.* 228:96-102.

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- Heinrich, B. 1977. The exercise physiology of the bumblebee. *Am. Sci.* 65:455-465.
- Heinrich, B. 1977. The game of the bees. *Horticulture* July 1977:39-45.
- Heinrich, B. and G. A. Bartholomew. 1979. The ecology of the African dung beetle. *Sci. Amer.* 241(5):146-156.
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- Heinrich, B. 1981. Energetics of honeybee swarm thermoregulation. *Sci. Am.* 244(6):146-160.
- Heinrich, B. (1986) Ravens on my mind. *Audubon* 88:74-77.
- Heinrich, B. (1986) Why is a robin's egg blue? *Audubon* 88:64-70.
- Heinrich, B. (1987) Pacing: The lesson of the frogs. *Ultrarunning*, July-August, pp. 32-33.
- Heinrich, B. (1987) Capsules for the Cargo of Life. *Science* Nov./Dec. 56-62.
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- Heinrich, B. 1991. Nutcracker Sweets. *Natural History* 2:4-8.
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p. 176-178. John Wiley & Sons. Inc. New York.
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- Heinrich. B. 2008. The Porcupine's Palate. Northern Woodlands (in press).

## EDITORIALS, ABSTRACTS AND BOOK REVIEWS

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