

## DOCKETED

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Declaration of  
**ROBERT J. DOOLING Ph.D.**  
Huntington Beach Energy Project  
(12-AFC-02)

I, Robert J. Dooling, declare as follows:

1. I am presently employed by the University of Maryland as a Professor of Psychology and Co-Director of the Center for the Comparative & Evolutionary Biology of Hearing. On behalf of AES Southland Development, LLC, I have been engaged to provide environmental consulting services for the Huntington Beach Energy Project ("HBEP").
2. A copy of my professional qualifications and experience is attached hereto as Exhibit A and incorporated by reference herein.
3. I caused to be prepared or prepared information related to **Biological Resources** in support of the Application for Certification ("AFC") for HBEP. Such information was either provided by me to consultants for incorporation of such data into documents or based on my independent analysis of data from reliable documents and sources, as well as my professional experience and knowledge. Specifically, I prepared or caused to be prepared the following:
  - a. Opening Testimony in Support of Biological Resources (docketed with Applicant's Opening Testimony on June 30, 2014 (TN # TBD)).
4. It is my professional opinion that the information provided to the California Energy Commission related to the HBEP AFC proceeding is valid and accurate with respect to the issues addressed herein.
5. I am personally familiar with the facts and conclusions relayed in the testimony with respect to the issues addressed herein.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

6/24/14  
Date

  
\_\_\_\_\_  
Robert J. Dooling, Ph.D.

**EXHIBIT A**

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## CURRICULUM VITAE

Robert J. Dooling

June 2014

Work Address: Psychology Department  
University of Maryland  
College Park, MD 20742  
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### **Education:**

BS - Creighton Univ, Omaha, NE. Biology/Chemistry 1967  
MS - St. Louis Univ. St. Louis, MO. Biology/Psychology 1969  
Ph.D.- St. Louis Univ. St. Louis, MO. Physiol. Psychology 1975

### **Experience in Higher Education**

Teaching Fellow - St Louis Univ. (Biology) 1967-1968  
Research Ass't - Central Inst. for the Deaf 1968-1969  
Research Ass't - Central Inst. for the Deaf 1971-1975  
Postdoc. Fellow - Rockefeller Univ. (Behavior) 1975-1977  
Ass't Professor - Rockefeller Univ. (Behavior) 1977-1981  
Visiting Prof. - Vassar College (Psychology) 1979-1980  
Ass't Professor - Univ. of Maryland (Psychology) 1981-1984  
Adj. Ass't Prof - Rockefeller Univ. (Behavior) 1981-1986  
Assoc. Prof. - Univ. of Maryland (Psychology) 1984-1988  
Full Professor - Univ. of Maryland (Psychology) 1988-present  
Associate Chair - Univ. of Maryland (Psychology) 1992-1994  
Res. Policy Advisor - Univ. of Maryland College Park 1995-1999  
Assoc. VP for Research - Univ. of MD College Park 2001-present  
Director, Center for the Comparative & Evolutionary Biology  
of Hearing 2003-Present  
Director, Neuroscience and Cognitive Science Program 2007-2013

### **Experience in other than Higher Education**

Military Service - Pilot US Marine Corps, 1st Lt. 1968-1972

### **Professional Activities**

Secretary - Rockefeller Univ. Chapter of Sigma Xi - 1980  
President - University of Maryland Chapter of Sigma Xi 2001  
APA Congressional Subcommittee Testimony - 1989  
Member of NIH Study Section on Hearing 1989-1993  
NIH Consensus Panel/Cochlear Implants in Children - 1995  
Past Editorial Board, Journal of Comparative Psychology  
Occasional Ad Hoc Reviewer for:  
Acoustical Society of America  
American Association for the Advancement of Science

American Naturalist  
Animal Behaviour  
National Institutes of Health  
National Institute of Mental Health  
National Science Foundation  
Zeitschrift fur Tierpsychologie  
Behavioral Ecology and Sociobiology  
Journal of Comparative Psychology  
Journal of Experimental Psychology: Animal Behavior Processes  
Developmental Psychobiology  
The Journal of Neurobiology

### **Membership in Professional Organizations**

Acoustical Society of America  
American Association for the Advancement of Science  
American Psychological Association  
Animal Behaviour Society  
International Society for Developmental Psychobiology  
Psychonomic Society  
Sigma Xi National Society  
Society for the Experimental Analysis of Behavior  
Society for Neuroscience  
Association for Research in Otolaryngology  
Washington Academy of Sciences  
New York Academy of Sciences

### **Honors and Awards**

NIH Predoctoral Fellowship (not activated)	1974
NIH Postdoctoral Fellowship (not activated)	1975
Irma T. Hirschl Career Development Award	1980-81
NIMH Career Scientist Award (not activated)	1981
NIH Research Career Development Award (5 yrs)	1982-87
Wash. Acad. Sci. Award for Behav. Science Res.	1983
Alexander v. Humboldt Award/Senior Sci.	1990
NIMH Research Scientist Award (5 yrs)	1992-97
Distinguished Scholar-Teacher Award	2003

### **Writings (Published or In Press)**

#### **A. Books authored or edited**

##### **1989**

Dooling, R.J. and Hulse, S. (1989). The Comparative Psychology of Audition: Perceiving Complex Sounds. Hillsdale, NJ: Erlbaum.

##### **1991**

Brauth, S., Hall, W., and Dooling, R.J. (Eds.) (1991). The Plasticity of Development. Cambridge: MIT Press.

##### **1995**

Klump, G.M., Dooling, R.J., Fay, R.R., and Stebbins, W.C. (Eds.) (1995). Methods in Comparative Psychoacoustics, Basel: Birkhauser-Verlag

## 2000

Dooling, R.J., Popper, A.N., and Fay, R.R. (Eds.) (2000). *Comparative Hearing: Birds and Reptiles*, New York: Springer-Verlag.

## **B. Empirical, theoretical or scholarly articles in journals or in books (by year)**

### 1971

1. Dooling, R.J., Mulligan, J.A., and Miller, J.D. (1971). Auditory sensitivity and song spectrum of the common canary (*Serinus canarius*). *Journal of the Acoustical Society of America*, 50, 700-709.

### 1973

2. Dooling, R.J. (1973). Behavioral audiometry with the parakeet (*Melopsittacus undulatus*). *Journal of the Acoustical Society of America*, 53, 1757-1758.

### 1974

3. Dooling, R. J. and J. C. Saunders (1974). Absolute and Differential Frequency Sensitivity in Parakeet (*Melopsittacus undulatus*). *Journal of the Acoustical Society of America*, 55, 480-480.
4. Dooling, R.J. and Walsh, J.K. (1974). A technique for continuous EEG recording in the awake parakeet. *Behavior Research Methods & Instrumentation*, 6, 545-546.
5. Miller, J. D., R. E. Pastore, Wier, C. C., Kelly, W. J., and Dooling, R. J. (1974). Discrimination and Labeling of Noise-Buzz Sequences with Varying Noise-Lead Times. *Journal of the Acoustical Society of America*, 55, 390-390.
6. Saunders, J. C. and R. J. Dooling (1974). Relations between Vocalizations and Hearing Capability in Parakeet (*Melopsittacus undulatus*). *Journal of the Acoustical Society of America*, 55, 480-481.
7. Saunders, J.C. and Dooling, R.J. (1974). Noise-induced threshold shift in the parakeet (*Melopsittacus undulatus*). *Proceedings of the National Academy of Sciences*, 71, 1962-1965.

### 1975

8. Dooling, R.J. and Saunders, J.C. (1975). Auditory intensity discrimination in the parakeet (*Melopsittacus undulatus*). *Journal of the Acoustical Society of America*, 58, 1308-1310.
9. Dooling, R.J. and Saunders, J.C. (1975). Hearing in the parakeet (*Melopsittacus undulatus*): Absolute thresholds, critical ratios, frequency difference limens, and vocalizations. *Journal of Comparative and Physiological Psychology*, 88, 1-20.
10. Dooling, R.J., Walsh, J.K. and Tepas, D.I. (1975). Auditory evoked brain responses from the parakeet: Intensity functions. *Physiological Psychology*, 3, 307-311.

### 1976

11. Dooling, R. J. and J. K. Walsh (1976). Correction. *Physiological Psychology* 4, 268-268.

12. Dooling, R.J. and Walsh, J.K. (1976). Auditory evoked response correlates of hearing in the parakeet (*Melopsittacus undulatus*). *Physiological Psychology*, 4, 224-232.
13. Miller, J., Wier, C., Pastore, R., Kelly, W. and Dooling, R.J. (1976). Discrimination and labeling of noise-buzz sequences with varying noise-lead times: An example of categorical perception. *Journal of the Acoustical Society of America*, 60, 410-417.

### 1978

14. Dooling, R.J. and Haskell, R.J. (1978). Auditory duration discrimination in the parakeet (*Melopsittacus undulatus*). *Journal of the Acoustical Society of America*, 63, 1640-1643.
15. Dooling, R.J., Zoloth, S.R. and Baylis, J.R. (1978). Auditory sensitivity, equal loudness, temporal resolving power, and vocalizations in the house finch (*Carpodacus mexicanus*). *Journal of Comparative and Physiological Psychology*, 92, 867-876.

### 1979

16. Dooling, R.J. (1979). Temporal summation of pure tones in birds. *Journal of the Acoustical Society of America*, 65, 1058-1060.
17. Dooling, R.J. and Searcy, M.H. (1979). The relation among critical ratios, critical bands, and intensity difference limens in the parakeet (*Melopsittacus undulatus*). *Bulletin of the Psychonomic Society*, 13, 300-302.
18. Dooling, R.J., Peters, S.S., and Searcy, M.H. (1979). Auditory sensitivity and vocalizations of the field sparrow (*Spizella pusilla*). *Bulletin of the Psychonomic Society*, 14, 106-108

### 1980

19. Dooling, R.J. (1980). Behavior and psychophysics of hearing in birds. In A. Popper and R. Fay (Eds.), *Comparative Studies of Hearing in Vertebrates*. (pp. 261-288). New York: Springer-Verlag
20. Dooling, R.J. and Searcy, M.H. (1980). Early perceptual selectivity in the swamp sparrow. *Developmental Psychobiology*, 13, 499-506.
21. Dooling, R.J. and Searcy, M.H. (1980). Forward and backward auditory masking in the parakeet (*Melopsittacus undulatus*). *Hearing Research*, 3, 279-284.
22. Marler, P.R., Dooling, R.J., and Zoloth, S.R. (1980). Comparative perspectives on ethology and behavioral development. In M. Bornstein (Ed.), *Comparative Methods in Psychology: Ethological, Developmental, and Cross-cultural Viewpoints*. (189-230). Hillsdale, N.J.: Erlbaum.
23. Zoloth, S.R., Dooling, R.J., Miller, R., and Peters, S. (1980). A minicomputer system for the synthesis of animal vocalizations. *Zeitschrift fur tierpsychologie*, 54, 151-162.

### 1981

24. Dooling, R.J. and Searcy, M.H. (1981). Amplitude modulation thresholds for the parakeet (*Melopsittacus undulatus*). *Journal of Comparative Physiology*, 143, 383-388.
25. Dooling, R.J. and Searcy, M.H. (1981). A comparison of auditory evoked potentials in two species of sparrow. *Physiological Psychology*, 9, 293-298.

26. Marler, P.R., Zoloth, S.R., and Dooling, R.J. (1981). Innate programs for perceptual development: An ethological view. In E. Gollin (Ed.). *Developmental Plasticity: Behavioral and Biological Aspects of Variations in Development*. (pp. 135-172). New York: Academic Press.

### 1982

27. Dooling, R.J. (1982). Ontogeny of song recognition in birds. *American Zoologist*, 22, 571-580.
28. Dooling, R.J. (1982). Auditory perception in birds. In D. Kroodsma and E. Miller (Eds.). *Acoustic Communication in Birds*, Vol. 1. (pp. 95-130). New York: Academic Press.
29. Dooling, R.J., Clark, C., Miller, R., and Bunnell, T. (1982). Program package for the analysis and synthesis of animal vocalizations. *Behavior Research Methods and Instrumentation*, 14, 487.

### 1983

30. Clark, C., Dooling, R.J., and Bunnell, T. (1983). Analysis and synthesis of bird vocalizations: An FFT-based software system. *Behavior Research Methods and Instrumentation*, 15, 251-253.

### 1984

31. Dooling, R.J. (1984). Hearing and Balance. In B. Campbell and E. Lack (Eds.). *A New Dictionary of Birds*. Oxford: T & A.D. Poyser, Ltd.

### 1985

32. Dooling, R.J. and Searcy, M.H. (1985). Temporal integration of acoustic signals by the budgerigar (*Melopsittacus undulatus*). *Journal of the Acoustical Society of America*, 77, 1917-1920.
33. Dooling, R.J. and Searcy, M.H. (1985). Non-simultaneous auditory masking in the budgerigar (*Melopsittacus undulatus*). *Journal of Comparative Psychology*, 99, 226-230.
34. Okanoya, K. and Dooling, R.J. (1985). Colony differences in auditory thresholds in the canary (*Serinus canarius*). *Journal of the Acoustical Society of America*, 78, 1170-1176.
35. Park, T.J. and Dooling, R.J. (1985). Perception of species-specific contact calls by the budgerigar (*Melopsittacus undulatus*). *Journal of Comparative Psychology*, 99, 391-402.
36. Park, T.J., Okanoya, K., and Dooling, R.J. (1985). Operant conditioning of small song birds for acoustic discrimination. *Journal of Ethology (Japan)*, 3, 5-9.

### 1986

37. Dooling, R.J. Perception of vocal signals by the budgerigar (*Melopsittacus undulatus*). *Experimental Biology*, 45, 195-218.
38. Dooling, R.J., Okanoya, K., Downing, J., and Hulse, S. (1986). Hearing in the starling (*Sturnus vulgaris*): Absolute thresholds and critical ratios. *Bulletin of the Psychonomic Society*, 24, 462-464.
39. Park, T. and Dooling, R.J. (1986). Perception of degraded vocalizations by budgerigars (*Melopsittacus undulatus*). *Animal Learning and Behavior*, 14, 359-364.

### 1987



40. Brauth, S.E., McHale, C.M., Brasher, C.A., and Dooling, R.J. (1987). Auditory pathways in the Budgerigar I. Thalamo-telencephalic projections. *Brain, Behavior, and Evolution*, 30, 174-199.
41. Dooling, R. J. (1987). Perceptual Organization of Complex Acoustic Stimuli in Budgerigars. *Bulletin of the Psychonomic Society* 25, 326-326.
42. Dooling, R. J. (1987). Correction. *Bulletin of the Psychonomic Society* 25, 227-227.
43. Dooling, R.J., Brown, S.D., Park, T.J., Okanoya, K., and Soli, S.D. (1987). Perceptual organization of acoustic stimuli by budgerigars (*Melopsittacus undulatus*): I. Pure tones. *Journal of Comparative Psychology*, 101, 139-149.
44. Dooling, R.J., Gephart, B.F., Price, P.H., McHale, C., and Brauth, S. E. (1987). Effects of deafening on the contact call of the budgerigar (*Melopsittacus undulatus*). *Animal Behaviour*, 35, 1264-1266.
45. Dooling, R.J., Park, T.J., Brown, S.D., Okanoya, K., and Soli, S.D. (1987). Perceptual organization of acoustic stimuli by budgerigars (*Melopsittacus undulatus*): II. Vocal signals. *Journal of Comparative Psychology*, 101, 367-381.
46. Dooling, R.J., Soli, S.D., Kline, R.M., Park, T.J., Hue, C. and Bunnell, T. (1987). Perception of synthetic speech sounds by the budgerigar (*Melopsittacus undulatus*). *Bulletin of the Psychonomic Society*, 25, 139-142.
47. Okanoya, K. and Dooling, R.J. (1987) Hearing in Passerine and Psittacine birds: A comparative study of masked and absolute auditory thresholds. *Journal of Comparative Psychology*, 101, 7-15.
48. Okanoya, K. and Dooling, R.J. (1987). Strain differences in auditory thresholds in the canary (*Serinus canaria*). *Journal of Comparative Psychology*, 101, 213-215.

## 1988

49. Brown, S.D., Dooling, R.J., and O'Grady, K. (1988). Perceptual organization of acoustic stimuli by budgerigars (*Melopsittacus undulatus*): III. Contact calls. *Journal of Comparative Psychology*, 102, 236-247.
50. Downing, J.D., Okanoya, K., and Dooling, R.J. (1988). Auditory short-term memory in the budgerigar (*Melopsittacus undulatus*). *Animal Learning and Behavior*, 16, 153-156.
51. Okanoya, K. and Dooling, R.J. (1988). Pattern recognition in birds: Auditory patterns. *Gengo (Japan)*, 17 (5), 14-21.
52. Okanoya, K. and Dooling, R.J. (1988). Hearing in the swamp sparrow (*Melospiza georgiana*) and the song sparrow (*Melospiza melodia*). *Animal Behaviour*, 36, 726-732.
53. Okanoya, K. and Dooling, R.J. (1988). Obtaining acoustic similarity measures from animals: A method for species comparisons. *Journal of the Acoustical Society of America*, 83, 1690-1693.

## 1989

54. Dooling, R.J. (1989). Perception of complex, species-specific vocalizations by budgerigars and humans. In R. Dooling and S. Hulse (Eds.). *The Comparative Psychology of Audition: Perceiving Complex Sounds*. (pp. 423-444). Hillsdale, N.J.: Erlbaum.
55. Dooling, R. J., S. D. Brown, and Bunnell, H. T. (1989). Perception of Vowel Categories by Budgerigars (*Melopsittacus undulatus*). *Bulletin of the Psychonomic Society* 27, 497-497.
56. Dooling, R.J., Okanoya, K., and Brown, S.D. (1989). Speech perception by budgerigars (*Melopsittacus undulatus*): The voiced-voiceless distinction. *Perception and Psychophysics*, 46, 65-71.
57. Park, T.J., Dooling, R.J., Rock, S., and Okanoya, K. (1989). Discrimination of natural contact calls by two strains of canary and the budgerigar. *Journal of Ethology (Japan)*, 7, 167-169.

## 1990

58. Dooling, R.J. and Brown, S.D. (1990). Speech perception by budgerigars (*Melopsittacus undulatus*): Spoken vowels. *Perception and Psychophysics*, 47, 568-574.
59. Dooling, R. J., Brown, S.D., Park, T.J., and Okanoya, K. (1990). Natural perceptual categories for vocal signals in budgerigars (*Melopsittacus undulatus*). In M. Berkley and W. Stebbins (Eds.), *Comparative Perception, Vol. II: Complex Signals*. (pp. 345-374). New York: John Wiley & Sons.
60. Dooling, R.J., Park, T.J., Brown, S.D., and Okanoya, K. (1990). Perception of species-specific vocalizations by isolate-reared budgerigars (*Melopsittacus undulatus*). *International Journal of Comparative Psychology*, 4, 57-78.
61. Okanoya, K. and Dooling, R.J. (1990). Song-syllable perception in song sparrows (*Melospiza melodia*) and swamp sparrows (*Melospiza georgiana*). *Bulletin of the Psychonomic Society*, 28, 221-224.
62. Okanoya, K. and Dooling, R.J. (1990). Detection of auditory sinusoids of fixed and uncertain frequency by budgerigars (*Melopsittacus undulatus*) and zebra finches (*Poephila guttata*). *Hearing Research*, 50, 175-184.
63. Okanoya, K. and Dooling, R.J. (1990). Detection of gaps in noise by budgerigars (*Melopsittacus undulatus*) and zebra finches (*Poephila guttata*). *Hearing Research*, 50, 185-192.
64. Okanoya, K. and Dooling, R.J. (1990). Temporal integration in zebra finches (*Poephila guttata*). *Journal of the Acoustical Society of America*, 87, 2782-2784.
65. Okanoya, K., Dooling, R.J., and Downing, J.D. (1990). Hearing and vocalizations in hybrid Waterslager-Roller canaries (*Serinus canarius*). *Hearing Research*, 46, 271-276.

## 1991

66. Brown, S. D. and R. J. Dooling (1991). Perception of Conspecific Faces by a Bird. *Bulletin of the Psychonomic Society* 29, 486-486.
67. Dooling, R.J. (1991). Hearing in birds. In D. Webster, R. Fay and A. Popper (Eds.). *The Evolutionary Biology of Hearing*. (pp. 545-560) New York: Springer-Verlag.
68. Kreutzer, M.L, Dooling, R.J., Brown, S.D., and Okanoya, K. (1991). A comparison of song syllable perception in five species of birds. *International Journal of Comparative Psychology*, 4, 141-155.
69. Okanoya, K. and Dooling, R.J. (1991). Detection of species-specific calls in noise by zebra finches (*Poephila guttata*) and budgerigars (*Melopsittacus undulatus*): Time or frequency domain? *Bioacoustics*, 3, 163-172.
70. Okanoya, K. and Dooling, R.J. (1991). Perception of distance calls by budgerigars (*Melopsittacus undulatus*) and zebra finches (*Poephila guttata*): Assessing species-specific advantages. *Journal of Comparative Psychology*, 105, 60-72.
71. Park, T.J. and Dooling, R.J. (1991). Sound localization in small birds: Absolute localization in azimuth. *Journal of Comparative Psychology*, 105, 125-133.

## 1992

72. Brown, S.D. and Dooling, R.J. (1992). Perception of conspecific faces by budgerigars (*Melopsittacus undulatus*) I. Natural faces. *Journal of Comparative Psychology*, 106, 203-216.
73. Dooling, R.J. (1992). Perception of speech sounds by birds. In Y. Cazals, L. Demany and K. Horner (Eds.). *The 9th International Symposium on Hearing: Auditory Physiology and Perception*. (pp. 407-413). Oxford, England: Pergamon Press.

74. Dooling, R.J., Brown, S.D., Klump, G. and Okanoya, K. (1992). Auditory perception of conspecific and heterospecific vocalizations in birds: Evidence for special processes. *Journal of Comparative Psychology*, 106, 20-28.
75. Farabaugh, S.M., Brown, E.D., and Dooling, R.J. (1992). Analysis of warble song of the budgerigar, (*Melopsittacus undulatus*). *Bioacoustics*, 4, 111-130.

### 1993

76. Ali, N.J., Farabaugh, S. and Dooling, R. (1993). Recognition of contact calls by the budgerigar (*Melopsittacus undulatus*). *Bulletin of the Psychonomic Society*, 31, 468-470.
77. Brown, S.D. and Dooling, R.J. (1993). Perception of conspecific faces by budgerigars (*Melopsittacus undulatus*) II. Synthetic models. *Journal of Comparative Psychology*, 107, 48-60.

### 1994

78. Farabaugh, S.M., Linzenbold, A., and Dooling, R.J. (1994). Vocal plasticity in budgerigars (*Melopsittacus undulatus*): Evidence for social factors in the learning of contact calls. *Journal of Comparative Psychology*, 108, 81-92.
79. Gleich, O., Dooling, R.J. and Manley, G.A. (1994). Inner-ear abnormalities and their functional consequences in Belgian Waterslager Canaries (*Serinus canaria*). *Hearing Research*, 79, 123-136.
80. Gleich, O., Klump, G.M. and Dooling, R.J. (1994). Hereditary Sensorineural Hearing Loss in a Bird. *Naturwissenschaften*, 81, 320-323.
81. Gleich, O., Manley, G.A., Mandl, A. and Dooling, R. (1994) The basilar papilla of the canary and the zebra finch: A quantitative scanning electron microscopic description. *Journal of Morphology*, 220, 1-24.

### 1995

82. Dooling, R.J. and Okanoya, K. (1995). Psychophysical methods for assessing perceptual categories. In Klump, G.M., Dooling, R.J., Fay, R.R., and Stebbins, W.C. (Eds.). *Methods in Comparative Psychoacoustics*. (pp. 307-318) Basel: Birkhauser Verlag.
83. Dooling, R.J., and Okanoya, K. (1995). The method of constant stimuli in testing auditory sensitivity in small birds. In Klump, G.M., Dooling, R.J., Fay, R.R., and Stebbins, W.C. (Eds.). *Methods in Comparative Psychoacoustics*. (pp. 161-169) Basel: Birkhauser Verlag.
84. Dooling, R.J. and Ryals, B.M. (1995). Effects of acoustic overstimulation on four species of birds. In: Manley, G.A., Klump, G.M., Koppl, C., Fastl, H., and Oeckinghaus (Eds.) *Advances in Hearing Research*, (pp. 32-39) Singapore: World Scientific Publishers.
85. Dooling, R.J., Best, C.T. and Brown, S.D. (1995). Discrimination of synthetic full-formant and sine wave /ra-la/ continua by budgerigars (*Melopsittacus undulatus*) and zebra finches (*Taeniopygia guttata*). *Journal of the Acoustical Society of America*, 97 (3), 1839-1846.
86. Gleich, O., Klump, G.M., and Dooling, R.J. (1995). Peripheral basis for the auditory deficit in Belgian Waterslager canaries (*Serinus canaria*). *Hearing Research*, 82, 100-108.
87. Gleich, O., Dooling, R.J., Manley, G.A., Klump, G.M., and Strutz, J. (1995). Evidence for Continuous Hair Cell Regeneration in a Song Bird with Hereditary Cochlear Hearing-Loss. *HNO* 43 (5), 287-293.
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- Manley, G.A., Klump, G.M., Köppl, C., Fastl, H., Oeckinghaus, (Eds.), *Advances in Hearing Research*. World Scientific Publishers, Singapore. pp. 40-49.
89. Langemann, U., Klump, G.M., and Dooling, R.J. (1995). Critical bands and critical-ratio bandwidth in the European starling. *Hearing Research*, 84, 167-176.

## 1996

90. Dooling, R.J., Brown, S.D., Manabe, K. and Powell, E.F. (1996). The perceptual foundations of vocal learning in budgerigars. In Moss, C.F., and Shettleworth, S. (Eds.) *Neuroethological Studies of Cognitive and Perceptual Processes*. (pp. 113-137) Boulder, Colorado: Westview Press.
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92. Gleich, O., R. J. Dooling, Presson, J. C., Strutz, J. (1996). Continuous proliferation of supporting cells and evidence for differentiation of hair cells in the inner ear of an adult song bird with genetic hearing loss. *HNO*, 44, 307-312.
93. Larsen ON, Dooling RJ and Ryals BM (1996): Roles of intracranial air pressure in bird audition. In: *Diversity in Auditory Mechanics*. (E. R. Lewis, G. R. Long, R. F. Lyon, P. M. Narins, C. R. Steele & E. Hecht-Poinar, eds.), pp. 11-17, World Scientific: Singapore, New Jersey, London, Hong Kong.
94. Nespor, A.A., Lukaszewicz, M.J., Dooling, R.J., and Ball, G.F. (1996). Testosterone induction of male-like vocalizations in female budgerigars (*Melopsittacus undulatus*). *Hormones and Behavior*, 30 (2), 162-169.
95. Popper, A. N. and R. J. Dooling (1996). Comparative and evolutionary biology of hearing at the University of Maryland, College Park, USA. *Bioacoustics*, 7, 45-51.
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## 1997

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## **2012**

162. Dooling, R.J. and Thierrien, S. (2012) Hearing in Birds: What changes from air to water. In A.N. Popper and A. Hawkins (Eds). *Third International Conference on the Effects of Noise on Aquatic Life*. Springer: New York, pp. 77-82.
163. Tu, H.-W. and Dooling, R.J.(2012) Perception of warble song in budgerigars (*Melopsittacus undulatus*): evidence for special processing. *Animal Cognition*, 15(6), 1151-1159.

## **2013**

164. Lohr, B., Brittan-Powell E. F., Pater, L. and Dooling, R. J. (2013). Auditory brainstem responses and auditory sensitivity in woodpeckers, *Journal of Acoustical Society of America*, 133(1), 337-42.
165. Ryals, B.M., Dent, M.L., and Dooling, R.J. (2013) Return of Function after Hair Cell Regeneration, *Hearing Research*, 297, 113-120.
166. Manabe, K, Dooling, R.J., and Takaku, S. (2013) An Automated Device for Appetitive Conditioning in Zebrafish (*Danio rerio*). *Zebrafish*, 10(4), 518-523
167. Dooling, R.J. and Blumenrath, S.H. (2013) Avian Sound Perception in Noise. In H. Brumm (Ed), *Animal Communication and Noise*. Springer: New York, pp. 229-250
168. Manabe, K., Dooling, R.J., and Takaku, S. (2013) Differential Reinforcement of an Approach Response in Zebrafish (*Danio rerio*). *Behavioural Processes*, 98, 106-111.

## **In Press**

Dooling, R.J, Leek, M.R., and Popper, A.N. (In Press) Effects of noise on fishes: What we can learn from humans and birds. *Integrative Zoology*.

## **Undergoing Revision**

Manabe, K, Dooling, R.J., Takaku, S, and Roesch, M.R. (Submitted). Repeated color discrimination reversal learning under a Go/NoGo task in Zebrafish (*Danio rerio*). *Behavioural Processes*

## **In Preparation**

Brittan-Powell, E. F., Kobayashi, K., Okanoya, K., Dooling, R.J., Comer, C., and Park, T.J. (in prep). Constraints of subterranean living on auditory-vocal communication in the Naked mole-rat.

Brittan-Powell, E.F., Jensen, K.K., Larsen, O. and Dooling, R.J. (in prep). Hearing sensitivity in the

Hooded Crow.

Brittan-Powell, E. F., Dooling, R.J., Moss, C.M., and Pater, L. (in prep). Noise-induced hearing loss in the big brown bat

Tu, H.-W. & Dooling, R.J. (In prep.) Budgerigars' (*Melopsittacus undulatus*) species-specific "magic number" in the perception of sequential vocal patterns.

### **C. Professional Writing (none)**

### **D. Technical Reports**

Delaney, DK. Pater, LL. Melton, RH. MacAllister, BA. Dooling, RJ. Lohr, B. Brittan-Powell, EF. Swindell, Beaty, Carlile, Spadgenske (2002) Assessment of Training Noise Impacts on the Red-cockaded Woodpecker: Final Report: CERL.

Dooling, R.J. (2002) Avian Hearing and Avoidance of Wind Turbines. National Research Energy Laboratory. Technical Report NREL/TP-500-30844

Dooling, R.J. and Popper, AN (2007). The Effects of Highway Noise on Birds, CALTRANS.

### **E. Papers and Posters Presented With Abstracts Published (about the five years only).**

#### **2007**

Adler, H.J., Sanovich, E., Brittan-Powell, E.F. Dooling, R.J. (2007). WDR1 localization to hair cells in the avian inner ear. *Association for Research in Otolaryngology*, Denver, CO.

Dooling R.J. (2007). Detection and discrimination and detection of complex sounds by birds in quiet and noise. *Fourth International Conference on Bio-Acoustics*. Holywell Park, UK.

Dooling, R.J. (2007). Masking. *International Conference on the Effects of Noise on Aquatic Life*. Nyborg, Denmark.

Dooling, R.J. (2007). Perception of Bird Vocalizations in Noise *The International Ethological Conference*. Halifax, Nova Scotia, Canada.

Dooling, R.J., Gleich, O., and Manley, G.A. (2007). Audiogram, body mass, and basilar papilla length: Correlations in birds and predictions for extinct archosaurs. *Acoustical Society of America, 153rd annual meeting*, Salt Lake City, Utah.

Lauer, A. M., Dooling, R. J., and Eisenberg, M. (2007). Discrimination of natural and acoustically altered song syllables of normal-hearing and hearing-impaired canaries. *Association for Research in Otolaryngology*, Denver, CO.

#### **2008**

Blumenrath, S.H. & Dooling, R.J. (2008). Perception of degradation in birds - Species-specificity or random variation? 2nd International Conference on Acoustic Communication by Animals, Corvallis, OR (OSU), USA

Brittan-Powell, EF, Christensen-Dalsgaard, J, Tang, Y, Carr, CE, and Dooling RJ. (2008) Brainstem evoked potentials in lizards, *Association for Research in Otolaryngology*, Phoenix Arizona.

Brittan-Powell, E.F., Lohr, B., Noirot, I. and Dooling, R.J. (2008). Auditory brainstem responses in birds: How well do they compare to behavioral techniques for assessing hearing? *Acoustical Society of America*, Paris, France.

Marvit P, Payne Z, Ratner A, Dooling R (2008). The effect of social and environmental manipulations on the vocal response rate of budgerigars (*Melopsittacus undulatus*), *156th Meeting of the Acoustical Society of America*, Miami.

Tu, H, Smith, E., and Dooling, RJ (2008) Categorization of budgerigar (*Melopsittacus undulatus*) warble elements. (A) *156th Meeting of the Acoustical Society of America*, Miami.

Vernaleo, B.A., Dooling, R.J. (2008) Relative Saliency of Envelope and Fine Structure Cues in Zebra Finch Song, *156th Meeting of the Acoustical Society of America*, Miami.

## **2009**

Adler, H., Sanovich, E., Petralia, R., Brittan-Powell, EF, Dooling, RJ (2009) Structural Differences in Mitochondria among Hair Cells in the Belgian Waterslager and Non-Belgian Waterslager Canary Basilar Papillae ARO, Baltimore.

Brittan-Powell, EF, Dooling, RJ and Bee, M (2009) Using the ABR to Assess the Coherence Between Spectral Sensitivity, the Acoustic Environment, and Behavioral Selectivity in Frogs, ARO, Baltimore.

Dooling, RJ (2009). Bird hearing and communication in natural environments. *158th Meeting of the Acoustical Society of America*, San Antonio, Texas.

Dooling, R.J., West, E.W., and Leek, M.R. (2009) Conceptual and Computational Models of the Effects of Anthropogenic Noise on Birds. *5th International Bioacoustics Conference*, Loughborough Univ., Loughborough, England (Invited)

Dooling, R.J., Leek, M.R., and West, E.W. (2009) Predicting the Effects of Masking Noise on Communication Distance in Birds. *157th Meeting of the Acoustical Society of America*, Portland, OR. (Invited)

Tu, Hsiao-Wei, Osmanski, M. and Dooling, R.J. (2009). Acoustic and perceptual categories for vocal signals in budgerigars (*Melopsittacus undulatus*). *158th Meeting of the Acoustical Society of America*, San Antonio, Texas.

## **2010**

Dooling, RJ (2010) Animal hearing. *159th Meeting of the Acoustical Society of America and Noise-Con*, Baltimore, MD. (Invited)

Dooling, R.J. and Thierrien, S.C. (2010). Hearing in birds: What changes from air to water. *Third International Conference on the Effects of Noise on Aquatic Life*. Cork, Ireland (Invited)

Blumenrath, S. and Dooling, R.J. (2010). Analyzing acoustic scenes in reverberant environments: A bird study. *159th Meeting of the Acoustical Society of America and Noise-Con*, Baltimore, MD.

Tu, Hsiao-Wei and Dooling, R.J. (2010). Perception of alterations in natural budgerigar (*Melopsittacus undulatus*) warble: Implications of animal “syntactical capability.” *159th Meeting of the Acoustical*

Society of America and Noise-Con, Baltimore, MD.

Tu, Hsiao-Wei and Dooling, R.J. (2010). Production and perception of sequential patterns in budgerigar (*Melopsittacus undulatus*) warble: Evidence for a magic number. 159th Meeting of the Acoustical Society of America and Noise-Con, Baltimore, MD.

Vernaleo, B., Dooling, R.J. and Leek, M. (2010). Relative salience of acoustic features in zebra finch song. 159th Meeting of the Acoustical Society of America and Noise-Con, Baltimore, MD.

### **2011**

Dooling, RJ (2011) The effects of noise on birds. 161st Meeting of the Acoustical Society of America, Seattle, WA. (invited)

### **2012**

Dooling, RJ, Blumenrath, SB, Smith, E Simmons, R and Fristrup, K. (2012). An auditory approach to understanding the effects of noise on communication in natural environments, 163rd Meeting of the Acoustical Society of America, Kansas City, MO (invited)

Dooling, RJ. Blumenrath, SH, Simmons, R. and Fristrup, K. (2012) Understanding the masking effects of noise on communication in natural environments. Meeting of the Canadian Acoustical Society, Banff, Canada.

### **2013**

Dooling, R. J. and Blumenrath, S.H. (2013). Masking Experiments in Humans and Birds Using Anthropogenic Noises. Budapest, Hungary (Invited)

Dooling, R.J, Leek, M.R., and Popper, A.N. (2013) Effects of noise on fishes: What we can learn from humans and birds. Shanghai Ocean University

## **F. Other Professional Activities**

### **Recent Invited Colloquia at Other Universities**

University of California, Berkeley	May, 2004
University of Texas (Dallas)	October, 2004
Odense University (Biology) Denmark	June, 2005
George Mason Univ. (Neuroscience)	April, 2006
University of Virginia (Otolaryngology)	June, 2006
Johns Hopkins University	March, 2007
Purdue University	February, 2008
New Mexico State	October, 2008
UC Santa Cruz	January, 2013

### **Grants and Contracts**

NIMH (MH31165)	11/78-11/81
Irma T. Hirschl Career Award	12/80-12/81
NIH Career Development Award	09/82-9/87
NIH (NS19006)	12/82-12/84
NSF (BNS8405159)	10/84-7/87
NIH (NS19006)	12/84-12/87
NIH (NS19006)	01/88-12/92

NIH (NS25768)	02/88-12/90
NIH (DC00198)	01/93-12/98
NIMH Research Scientist Award	10/93-10/97
NIH (DC01372)	01/94-12/98
NIH (DC00046) Training Grant (Co-PI)	06/94-6/99
ARMY Contracts	04/98-12/98; 09/99-09/00; 05/03-04/06
NIH R21 – DC05481	05/02-01/04
NIH R01 - DC01372*	04/98-04/08
NIH R01 - DC00198*	07/98-1/09
NIH P30 – DC004664*	08/02-12/12
National Park Service	08/10-12/13

### **Sample of Past and Current Administrative and Related Activities**

Acting Associate Chair, Psychology  
 Member, Search Committee for Associate Provost for Research and Dean of Graduate School  
 Member, NIH Hearing Research Study Section - 4 years  
 Chair, Search Committee for Chair of Department of Hearing and Speech Sciences  
 Chair, Search Committee for Chair of Department of Afro-American Studies  
 Chair, Search Committee for Chair of Department of Biology  
 Research Policy Advisor for the Graduate School (1995-1999)  
 Chair, Research Committee of Graduate Council (1997-1999)  
 Member, Animal Care and Use Committee (1995-1999)  
 Co-Chair, Human Subjects Institutional Review Board (1997-2000)  
 Chair, Campus Intellectual Property Committee (2001-2003)  
 Member, Campus Conflict of Interest Committee (2004-present)  
 Associate Director, Comparative and Evolutionary Biology of Hearing Training Grant (Current)  
 Co-Director, Center for the Comparative and Evolutionary Biology of Hearing (Current)  
 Associate Vice President for Research (2001-current)

### **Examples of Classes Taught**

General Psychology (Undergraduate Honors)  
 Physiological Psychology (Undergraduate)  
 Developmental Biopsychology (Undergraduate)  
 Comparative Psychology (Graduate)  
 Responsible Conduct of Research (Graduate)

### **Examples of Classes Lectured In**

Hearing (Graduate)  
 Cognitive Psychology (Graduate)  
 Introduction to Audiology (Undergraduate)