

CURRICULUM VITAE

KATHERINE RALLS

ADDRESS AND TELEPHONE

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DATE AND PLACE OF BIRTH

21 March 1939; Alameda, California

PRESENT POSITIONS

Senior Scientist, National Zoological Park, Smithsonian Institution 1998-date

Research Associate, Institute of Marine Sciences, University of California, Santa Cruz 2004-date

PAST POSITIONS

Research Zoologist, National Zoological Park, Smithsonian Institution 1976-97

Fellow, American Association of University Women 1975-76

Fellow, Division of Mammals, Smithsonian Institution 1973-76

Fellow, Radcliffe Institute 1973-74

Faculty, Sarah Lawrence College 1970-73

Guest Investigator, Rockefeller University 1968-70

Research Associate, New York Zoological Society 1968-70

Post-doctoral Fellow, University of CA., Berkeley 1965-67

EDUCATION

B.A.	Stanford University	Biology	1960
M.A.	Radcliffe College	Biology	1962
Ph.D.	Harvard University	Biology	1965

AREAS OF RESEARCH INTEREST

I have long had broad interests in the behavioral ecology, genetics, and conservation of mammals, both terrestrial and marine. Since 1980, I have been most concerned with conservation biology, especially the genetic problems of small captive and wild populations and field studies of threatened and endangered mammals, including sea otters and San Joaquin kit foxes. My practical experience with the conservation problems of a variety of endangered species has led to my interest in developing noninvasive techniques for studying these species as well as the development of decision-making tools and processes to achieve better policy and management decisions.

HONORS

Elected Fellow, California Academy of Sciences, 2007

George Miksch Sutton Award in Conservation Research (with collaborators), Southwestern Association of Naturalists, 2007

Elected Honorary Fellow, Zoological Society of London, 2006

Resolution of Appreciation, Stanislaus Foundation Endangered Species Recovery Program, 1998

C. Hart Merriam Award, American Society of Mammalogists, 1996

Edward T. LaRoe Award, Society for Conservation Biology, 1996

Elected Fellow, Animal Behavior Society, 1992

Elected Fellow, American Association for the Advancement of Science, 1989

PROFESSIONAL ACTIVITIES

American Association of Zoological Parks and Aquaria: Species Survival Plan Subcommittee 1981-1988

American Society of Mammalogists: Honoraria Committee 1982-83; Chairman, Merriam Award Committee 1989, 1990; Chairman, Conservation of Land Mammals Committee, 1991; Board of Directors 1984-1987, 1988-1990; 1996; Second Vice-President 1990; 1991; 1992

Conservation Genetics: Editorial Board 2000-2003

International Union for Conservation of Nature and Natural Resources, Survival Service Commission: Captive Breeding Specialist Group 1979-1996; Otter Specialist Group 1989-1995; Reintroduction Specialist Group 1992-date

Marine Mammal Commission: Committee of Scientific Advisors 1979-82; Hawaiian monk seal program review 1996

Monterey Bay Aquarium: Blue Ribbon Panel on Sea Otter Recovery 2003

National Academy of Sciences, National Research Council: Committee on Scientific Issues in the Endangered Species Act 1993-1994; Committee on Ungulate Management in Yellowstone National Park 1998-2000; Committee on Describing Biologically Significant Marine Mammal Behavior 2003-2004

National Oceanic and Atmospheric Administration, Protected Species Science Review Panel, 1993

National Park Service: Island fox conservation team, 1999-2004

National Science Foundation: Psychobiology Advisory Panel 1982-83

National Marine Fisheries Service: Pacific Regional Scientific Review Group 1994-date; Hawaiian Monk Seal Recovery Team 1997-2001; ESA Listing Criteria Performance Testing Group 2006-date

Signs: Editorial Board 1975-78

Society for Marine Mammalogy: Editorial Board and Book Review Editor, *Marine Mammal Science* 1983-1989

Society for Conservation Biology: Board of Governors 1985-1990; 1997-2000; Chairman, Policy and Resolutions Committee 1985-1989; Chairman, Awards Committee 1990; Chairman, Nominations Committee 1990; Policy and Resolutions Committee 1992-1995; Edward T. LaRoe Award Committee 1997-1999, Chairman 2000-2001.

U. S. Fish and Wildlife Service: Southern Sea Otter Recovery Team 1989-2004; California Condor Recovery Team 1990-2010; Island Fox Integrated Recovery Team 2004-date; Desert Tortoise Scientific Advisory Committee 2005-date; San Joaquin Kit Fox Advisory Group 2006-date; Southwestern Alaska Sea Otter Recovery Team 2005-date.

Member: American Association for the Advancement of Science, Animal Behavior Society, American Society of Mammalogists, Society for Conservation Biology

PUBLICATIONS

Ralls, K. 1967. Auditory sensitivity in mice: *Mus musculus* and *Peromyscus*. *Animal Behaviour* 15:123-128.

Ralls, K. 1969. Jentink's duiker. *Animal Kingdom* 72:33.

- Ralls, K. 1969. Review of "Ethology of Mammals" by R. F. Ewer. *Journal of Mammalogy* 50: 846-847.
- Ralls, K. 1970. Duikers: from African forest to "African Plains" *Animal Kingdom* 50:18-23.
- Ralls, K. 1970. Review of *The Ecology and Behavior of the Black Rhinoceros* by R. Schenkel and L. Schenkel-Hilliger. *Journal of Mammalogy* 51:647.
- Ralls, K. 1971. Mammalian scent marking. *Science* 171:443-449.
- Ralls, K. 1973. *Cephalophus maxwellii*. *Mammalian Species* 31:1-4.
- Volkman, N. and K. Ralls. 1973. Scent marking in the red brocket, *Mazama americana*. *Zoologica* 58:55-66.
- Ralls, K. 1973. Review of *The Behavior and Physiology of Pinnipeds* by R. J. Harrison *et al.*, eds. *Carnivore Genetics Newsletter* 2: 136.
- Ralls, K. 1974. Scent marking in captive Maxwell's duiker, *Cephalophus maxwellii*. p. 114-123 in V. Geist and F. Walther, eds., *The Behavior of Ungulates and its Relation to Management*. IUCN Publications, n.s. No. 24, Vol. 1.
- Ralls, K. 1974. Review of *Dik-dik und Elefanten* by H. Hendrichs and U. Hendrichs. *Journal of Mammalogy* 55:484.
- Ralls, K., C. Barasch, and K. Minkowski. 1975. Behavior of captive mouse deer, *Tragulus napu*. *Zeitschrift fur Tierpsychologie* 37:356-378.
- Ralls, K. 1975. Agonistic behavior in Maxwell's duiker, *Cephalophus maxwellii*. *Mammalia* 39: 241-249.
- Ralls, K. 1975. Review of *Social Stratification in Science* by J. R. Coles and S. Coles. *Quarterly Review of Biology* 50:435.
- Ralls, K. 1976. Extremes of sexual dimorphism in size in birds. *Wilson Bulletin* 88:149-150.
- Ralls, K. 1976. Mammals in which females are larger than males. *Quarterly Review of Biology* 51: 245-276.
- Ralls, K. 1976. Review of *Being Female*, Dana Raphael, ed. *Quarterly Review of Biology* 51:464.
- Brownell, R. L., Jr. and K. Ralls. 1976. Review of "International Zoo Yearbook", Vols. 14 and 15, N. Duplaix-Hall, ed. *Journal of Mammalogy* 57:612.

- Ralls, K. 1977. Sexual dimorphism in mammals: Avian models and unanswered questions. *American Naturalist* 111:917-938.
- Ralls, K. 1977. Review of *Okologie und Verhalten des Banteng (Bos javanicus)* by U. Halder. *Journal of Mammalogy* 58:255-256.
- Ralls, K. 1978. When bigger is best. *New Scientist* 77 (1089):360-362.
- Ralls, K. 1978. Review of *The Gerbil in Behavioral Investigations. Mechanisms of Territoriality and Olfactory Communication* by Del Thiessen and Pauline Yahr. *Quarterly Review of Biology* 53:79-80.
- Ralls, K. 1978. Mother-young ties in hoofed mammals. *The ZooGoer* 7(2):4-10.
- Ralls, K. 1978. *Tragelaphus eurycerus*. *Mammalian Species*. No. 111:1-4.
- Ralls, K. 1978. Review of *Ontogeny and Phylogeny* by Steven Jay Gould. *Contemporary Psychology* 23:498-500.
- Ralls, K. 1978. Review of *Primate Ecology: Studies of feeding and ranging in lemurs, monkeys, and apes* by T. H. Clutton-Brock. *Quarterly Review of Biology* 53:326-327.
- Blakeslee, C. K., C. G. Rice, and K. Ralls. 1979. Behavior and reproduction of captive brow-antlered deer, *Cervus eldi thamin*. *Saugetierkundliche Mitteilungen* 27:114-127.
- Kranz, K. and K. Ralls. 1979. The scimitar-horned oryx. *The ZooGoer* 8:13-15.
- Ralls, K., K. Brugger and J. Ballou. 1979. Inbreeding and juvenile mortality in small populations of ungulates. *Science* 206:1101-1103.
- Ralls, K. 1980. Review of *Behavior of Marine Animals, Current Perspectives in Research*, Vol. 3, *Cetaceans* H. E. Winn and B. L. Olla, eds. *Bioscience* 30:192.
- Ralls, K. 1980. Comment on Marion Lowe's *Sociobiology and Sex Differences*. *Signs* 5:544-545.
- Ralls, K., R. L. Brownell, Jr., and J. Ballou. 1980. Differential mortality by sex and age in mammals, with specific reference to the sperm whale. *Reports of the International Whaling Commission*, Special Issue 2:233-244.
- Ralls, K. K. Brugger and A. Glick. 1980. Deleterious effects of inbreeding in a herd of captive Dorcas gazelle, *Gazella dorcas*. *International Zoo Yearbook* 20:137-146.
- Brownell, R. L., Jr., P. K. Anderson, R. Owens and K. Ralls. 1981. The status of dugongs at Palau,

- an isolated island group. Pp. 19-42 in *The Dugong*, H. Marsh, ed. James Cook University of North Queensland, Australia.
- Ralls, K. 1981. Review of *Chemical Signals: Vertebrates and aquatic invertebrates* D. Muller-Schwarze and R. M. Silverstein, eds. *Quarterly Review of Biology* 56:228.
- Brownell, R. L., Jr. and K. Ralls, eds. 1981. The West Indian Manatee in Florida. Proceedings of a workshop held in Orlando, Florida, 27-29 March 1978. Florida Department of Natural Resources, Tallahassee.
- Ralls, K. and J. Ballou. 1982. Effects of inbreeding on juvenile mortality in some small mammal species. *Laboratory Animals* 16:159-166.
- Ralls, K. and J. Ballou. 1982. Effects of inbreeding on infant mortality in captive primates. *International Journal of Primatology* 3:491-505.
- Ballou, J. and K. Ralls. 1982. Inbreeding and juvenile mortality in small populations of ungulates: a detailed analysis. *Biological Conservation* 24:239-271.
- Ralls, K., L. Hayek and C. O. Handley, Jr. 1982. Correlations between three measures of size in Neotropical bats. *Saugetierkundliche Mitteilungen* 30:190-198.
- Ralls, K., J. Ballou and R. L. Brownell, Jr. 1983. Genetic diversity in California sea otters: Theoretical considerations and management implications. *Biological Conservation* 25: 209-232.
- Ralls, K., B. Lundrigan and K. Kranz. 1983. Variability of behavioral data recorded by volunteer observers. *International Zoo Yearbook* 22:244-249.
- Ralls, K. and J. Ballou. 1983. Extinction: Lessons from zoos. Pp. 164-184 in *Genetics and Conservation. A reference for managing wild animal and plant populations*, C. M. Schonewald-Cox, S. M. Chambers, B. MacBryde, and W. L. Thomas, eds. Menlo Park, CA: Benjamin Cummings.
- Ralls, K. 1983. Review of *Horse Behavior. The behavioral traits and adaptations of domestic and wild horses* by George H. Waring. *Quarterly Review of Biology* 58:593.
- Ralls, K. 1984. Review of *The Biology and Management of an Extinct Species: Pere David's Deer*, B. J. Beck and C. M. Wemmer, eds. *Quarterly Review of Biology* 59:78-79.
- Ralls, K. and K. Kranz. 1984. Review of *Gazelles and their Relatives. A study in territorial behavior* by F. R. Walther, E. C. Mungall, and G. A. Grau. *Journal of Mammalogy* 65:175.
- Ralls, K. 1984. Genetic management of zoo animals. *Biologist* 31:99-102.

- Ralls, K. and K. Kranz. 1984. Duikers. Pp. 556-559 in D. McDonald, Ed., in *The Encyclopedia of Mammals*, Facts on File Publications, New York.
- Ralls, K., H. K. Buechner, R. Kiltie and K. Kranz. 1985. Behavior and reproduction of captive bongo, *Tragelaphus eurycerus*. *Der Zoologische Garten* 55:41-67.
- Harvey, P. and K. Ralls. 1985. Homage to the null weasel. Pp. 155-171 in *Evolution - essays in honor of John Maynard Smith*. P. J. Greenwood, M. Slatin and P. Harvey, eds. Cambridge Univ. Press.
- Ralls, K. 1985. Review of *Communication and Expression of Hoofed Mammals* by Fritz Walther. *Journal of Mammalogy* 66:201.
- Ralls, K. and P. Harvey. 1985. Geographic variation in size and sexual dimorphism in North American weasels. *Biological Journal of the Linnaean Society* 25: 119-167.
- Ralls, K., P. Fiorelli and S. Gish. 1985. Vocalizations and vocal mimicry in captive harbor seals, *Phoca vitulina*. *Canadian Journal of Zoology* 63:1050-1056.
- Ralls, and K., K. Kranz and B. Lundrigan. 1985. Mother-young behavior in ungulates. *Applied Animal Behavior Science* 14: 201-203.
- Ralls, K., K. Kranz and B. Lundrigan. 1986. Mother-young relationships in captive ungulates: variability and clustering. *Animal Behaviour* 34:134-145.
- Harvey, P. H. and K. Ralls. 1986. Do Animals Avoid Incest? *Nature* 320:575-576.
- Ralls, K. and J. Ballou, eds. 1986. Proceedings of the Workshop on the Genetic Management of Captive Populations. *Zoo Biology* 5:81-238.
- Ralls, K., P. H. Harvey and A. M. Lyles. 1986. Inbreeding in natural populations of birds and mammals. Pp. 35-56 in: *Conservation Biology: the Science of Scarcity and Diversity*, M. Soule, ed., Sinauer.
- Ralls, K. and J. Ballou. 1986. Captive breeding programs for populations with a small number of founders. *Trends in Ecology and Evolution* 1:19-22.
- Brownell, R. L., Jr. and K. Ralls. 1986. Potential for sperm competition in baleen whales. *Reports of the International Whaling Commission* (Spec. Issue. No. 8.):97-112.
- Ralls, K. and R. L. Brownell, Jr. 1986. Artist identified. *Science* 234:660.
- Ralls, K. 1986. Review of *The Elements of Graphing Data* by W. S. Cleveland. *Marine Mammal*

- Science* 2:240-241.
- Ralls, K. 1986. Review of *Otters: Ecology and Conservation* by C.F. Mason and S.M. Macdonald and *The Natural History of Otters* by P. Chanin. *Quarterly Review of Biology* 61:560-561.
- Ralls, K., B. Lundrigan and K. Kranz. 1987. Mother-young relationships in captive ungulates: spatial and temporal patterns. *Zoo Biology* 6:11-20.
- Ralls, K., B. Lundrigan and K. Kranz. 1987. Mother-young relationships in captive ungulates: behavioral changes over time. *Ethology* 75:1-14.
- Ralls, K., J. Ballou, and A. R. Templeton. 1988. Estimates of lethal equivalents and the cost of inbreeding in mammals. *Conservation Biology* 2:185-193.
- Ralls, K. and J. Ballou. 1988. Review of *Viable Populations for Conservation* edited by M. E. Soule. *Trends in Ecology and Evolution* 3:148-49.
- Rathbun, G. B., R. L. Brownell, Jr., K. Ralls, and J. Engbring. 1988. Distribution and status of dugongs in Palau. *Marine Mammal Science* 4:265-270.
- Ralls, K. and R. L. Brownell, Jr. 1988. Sperm competition in grey whales. *Nature* 336:116-117.
- Brownell, R. L., Jr., K. Ralls, and W. F. Perrin. 1989. The plight of the "forgotten" whales. *Oceanus* 32:5-9.
- Ralls, K. 1989. A semi-captive breeding program for the baiji, *Lipotes vexillifer*: genetic and demographic considerations. Pp. 150-156 in: W. F. Perrin, R. L. Brownell, Jr., Zhou Kaiya and Liu Jiankang (eds.). *Biology and Conservation of the River Dolphins*. IUCN Species Survival Commission Occasional Paper No. 3.
- Ralls, K. 1989. Review of *Sounds of Silence* by G. B. Schaller. *Animal Behaviour* 37:1059.
- Ralls, K. and R. L. Brownell, Jr. 1989. Protected species: research permits and the value of basic research. *BioScience* 39:394-396.
- Ralls, K., T. W. Williams, D. B. Siniff, and V. B. Kuechle. 1989. An intraperitoneal radio transmitter for sea otters. *Marine Mammal Science* 5: 376-381.
- Ralls, K. 1990. Review of *Conservation for the Twenty-first Century* edited by D. Western and M. C. Pearl. *Science* 247:224.
- Ralls, K. and D. B. Siniff. 1990. Time budgets and activity patterns in California sea otters. *Journal of Wildlife Management* 54:251-259.

- Ralls, K. 1990. Saving ferrets and more -- a review of *Conservation Biology and the Black-footed Ferret* edited by U. S. Seal, E. T. Thorne, M. A. Bogan, and S. H. Anderson. 1990. *The Prairie Naturalist* 22:141-142.
- Ralls, K. and D. B. Siniff. 1990. Sea otters and oil: ecological perspectives. Pp. 199-210 in: J. Gerachi and D. J. St. Aubin (eds.), *Sea Mammals and Oil: Confronting the Risks*. Academic Press, N.Y.
- Ralls, K. 1990. Review of *The Natural History of Weasels and Stoats* by C. King. *Quarterly Review of Biology* 65:517.
- Ralls, K. 1990. Reintroductions. Pp. 20-21 in P. Foster-Turley, S. Foster-Turley, S. Macdonald and C. Mason (eds.), *Otters: An Action Plan for their Conservation*. IUCN/SSC Otter Specialist Group, Gland, Switzerland.
- Ralls, K. and R. L. Brownell, Jr. 1991. A whale of a new species. *Nature* 350:560.
- Siniff, D. B. and K. Ralls. 1991. Reproduction, survival, and tag loss in California sea otters. *Marine Mammal Science* 7:211-229.
- Ralls, K., D. B. Siniff, A. Doroff, and A. Mercure. 1992. Movements of sea otters relocated along the California coast. *Marine Mammal Science* 8:178-184.
- Ralls, K., R. A. Garrott, D. B. Siniff, and A. Starfield. 1992. Research on threatened populations. Pp. 197-216 in D. R. McCullough and R. H. Barrett (eds.), *Wildlife 2001: Populations*. Elsevier, London, U. K.
- Ralls, K. 1992. The imperfect art of reintroduction. Review of *Meant to be Wild: the Struggle to Save Endangered Species Through Captive Breeding* by J. DeBlieu and *Beyond Captive Breeding: Re-introducing Endangered Mammals to the Wild* edited by J. H. W. Gipp. *Conservation Biology* 6: 481-482.
- Ralls, K. and J. Ballou. 1992. Managing genetic diversity in captive breeding and reintroduction programs. *Transactions of the 57th North American Wildlife and Natural Resources Conference* (1992), pp. 263-282.
- Ralls, K. 1992. Review of *Genetic Ecology of Whales and Dolphins* edited by A. R. Hoelzel. *Journal of Wildlife Management* 56:826-827.
- Ralls, K. and R. Meadows. 1993. Conservation genetics: breeding like flies. *Nature* 361:689-690.
- White, P. J. and K. Ralls. 1993. Reproduction and spacing patterns of kit foxes relative to changing prey availability. *Journal of Wildlife Management* 57:861-867.

- Hoelzel, A. R., J. Halley, C. Campagna, T. Arnborn, B. LeBouef, S. J. O'Brien, K. Ralls, and G. A. Dover. 1993. mtDNA variation and simulation models facilitate the interpretation of elephant seal population bottlenecks. *Journal of Heredity* 84:433-449.
- Mercure, A., K. Ralls, K. P. Koepfli, and R. K. Wayne. 1993. Genetic subdivisions among small canids: mitochondrial DNA differentiation of swift, kit, and arctic foxes. *Evolution* 47:1313-1328.
- White, P. J., K. Ralls, and R. A. Garrott. 1994. Coyote-kit fox spatial interactions based on radiotelemetry. *Canadian Journal of Zoology* 72:1831-1836.
- Starfield, A. M., J. Roth, and K. Ralls. 1995. "Mobbing" in Hawaiian monk seals: the value of simulation modeling in the absence of apparently crucial data. *Conservation Biology* 9:166-174.
- Ralls, K. and A. M. Starfield. 1995. Choosing a management strategy: two structured decision-making methods for evaluating the predictions of stochastic simulation models. *Conservation Biology* 9:175-181.
- Ralls, K. and P. J. White. 1995. Predation on endangered San Joaquin kit foxes by larger canids. *Journal of Mammalogy* 76: 723-729.
- Ralls, K., B. Hatfield, and D. B. Siniff. 1995. Foraging patterns of California sea otters based on radiotelemetry. *Canadian Journal of Zoology* 73:523-531.
- Ralls, K. 1995. *But is it Science?* *Conservation Biology* 9:983-984.
- Ralls, K. 1995. Linear living: a review of *Wild Otters* by Hans Kruuk. *Trends in Ecology and Evolution* 10:426-427.
- Ralls, K. 1995. Conservation biology defined. A review of four books on conservation biology. *Nature* 378:347-348.
- White, P. J., K. Ralls, and C. A. Vanderbilt White. 1995. Overlap in habitat and food use between coyotes and San Joaquin kit foxes. *Southwestern Naturalist* 40:342-349.
- Brownell, R. L., Jr., K. Ralls, and W. F. Perrin. 1995. Marine mammal biodiversity: three diverse orders encompass 119 species. *Oceanus* 38:30-33.
- Ralls, K. 1995. Setting priorities for conserving endangered species. *California Agriculture* 49:43.
- Brody, A. J., K. Ralls, and D. B. Siniff. 1996. Potential impact of oil spills on California sea otters: Implications of the Exxon Valdez spill in Alaska. *Marine Mammal Science* 12:38-53.

- White, P. J., C. A. Vanderbilt White, and K. Ralls. 1996. Functional and numerical responses of kit foxes to a short-term decline in mammalian prey. *Journal of Mammalogy* 77:370-376.
- Ralls, K., D. DeMaster, and J. Estes. 1996. Developing a delisting criterion for the southern sea otter under the U.S. Endangered Species Act. *Conservation Biology* 10:1528-1537.
- Ralls, K., T. Eagle, and D. B. Siniff. 1996. Movement and spatial use patterns of California sea otters. *Canadian Journal of Zoology* 71:1841-1849.
- Ralls, K. and B. L. Taylor. 1997. How viable is Population Viability Analysis? Pp. 228-235 in S. T. A. Pickett, R. S. Ostfeld, M. Shachak, and G. E. Likens, Eds. *The Ecological Basis of Conservation: Heterogeneity, Ecosystems, and Biodiversity*. Chapman and Hall, NY.
- Ralls, K. and L. L. Eberhardt. 1997. Assessment of abundance of San Joaquin kit fox by spotlight surveys. *Journal of Mammalogy* 78:65-73.
- Ralls, K. 1997. On becoming a conservation biologist: autobiography and advice. Pages 356-372 in Janine Clemmons and Richard Buchholz, eds. *Behavioral Approaches to Conservation in the Wild*. Cambridge University Press.
- Ralls, K. 1997. A conservation biologist's toolbox. *Society for Conservation Biology Newsletter* 4 (1):4, 21.
- Ralls, K. 1997. Review of *Prairie Night: black-footed ferrets and the recovery of endangered species*. Smithsonian Institution Press, Washington D.C. *Quarterly Review of Biology* 72: 211-212.
- Paxinos, E., C. McIntosh, K. Ralls, and R. Fleischer. 1997. A non-invasive method for distinguishing among canid species: amplification and enzyme restriction of DNA from dung. *Molecular Ecology* 6:483-486.
- Good, S., D. Williams, K. Ralls and R. Fleischer. 1997. Population structure of *Dipodomys ingens* (Heteromyidae): the role of spatial heterogeneity in maintaining genetic diversity. *Evolution* 51:1296-1310.
- Frankham, R. and K. Ralls. 1998. Conservation biology: inbreeding leads to extinction. *Nature* 392:441-442.
- Ralls, K. 1998. Review of *The Science of Conservation Planning: Habitat Conservation under the Endangered Species Act* by R. F. Noss, M. A. O'Connell, and D. D. Murphy. *Forest Science* 44: 626-627.
- Ralls, K. 1998. Review of *Taking Complexity Seriously: Policy analysis, regulation and sustainable development* by E. Roe. *Ecology* 79: 2575-2576.

- Terborgh, J., J. A. Estes, P. Paquet, K. Ralls, D. Boyd, B. Miller, and R. Noss. 1999. The role of top carnivores in regulating terrestrial ecosystems. Pages 39-64 in M. Soule and J. Terborgh, eds. *Continental Conservation: Design and Management Principles for Long-Term, Regional Conservation Networks*. Island Press, Covelo, California and Washington, D.C.
- Dobson, A., K. Ralls, M. Foster, M. E. Soule, D. Simberloff, D. Doak, J. A. Estes, L. S. Mills, D. Mattson, R. Dirzo, H. Arita, S. Ryan, E. A. Norse, R. F. Noss, and D. Johns. 1999.. Connectivity: maintaining flows in fragmented landscapes. Pages 129-170 in M. Soule and J. Terborgh, eds. *Continental Conservation: Design and Management Principles for Long-Term, Regional Conservation Networks*. Island Press, Covelo, California and Washington, D.C.
- Miller, B., K. Ralls, R. P. Reading, J. Michael Scott, and J. Estes. 1999. Biological and technical considerations of carnivore translocation: a review. *Animal Conservation* 2: 59-68.
- White, P. J., K. Ralls, and D. B. Siniff. 2000. Nocturnal encounters between kit foxes. *Journal of Mammalogy* 81: 456-461.
- Ralls, K., J. D. Ballou, B. Rideout and R. Frankham. 2000. Genetic management of chondrodystrophy in California condors. *Animal Conservation* 3: 145-153.
- Ralls, K. and B. L. Taylor. 2000. Better policy and management decisions through explicit analysis of uncertainty: new approaches from marine conservation biology. *Conservation Biology* 14:1240-1242.
- Haight, R. G., K. Ralls, and A. M. Starfield. 2000. Designing species translocation strategies when population growth and future funding are uncertain. *Conservation Biology* 14: 1298-1307.
- Ralls, K. 2000. Southern sea otter. Pages 264-268 in R. Reading and B. Miller, eds. *Endangered Animals: a reference guide to conflicting issues*. Greenwood Press, Westport, Connecticut.
- Ralls, K., J. D. Ballou, and R. Frankham. 2001. Inbreeding and outbreeding. Pages 427-435 in S. Levin, ed., *Encyclopedia of Biodiversity*, Volume 3, Academic Press, San Diego.
- Ralls, K. and R. Meadows. 2001. Captive breeding and reintroduction. Pages 599-607 in S. Levin, ed., *Encyclopedia of Biodiversity*, Volume 1. Academic Press, San Diego.
- Smith, D.A., K. Ralls, B. Davenport, B. Adams, and J. E. Maldonado. 2001. Canine assistants for conservationists. *Science* 291: 435.
- Ralls, K. 2001. Safe harbor agreements. *Conservation Biology in Practice* 2(3): 4.
- Ralls, K., K. L. Pilgrim, P. J. White, E. E. Paxinos, M. K. Schwartz, and R. C. Fleischer. 2001.

- Kinship, social relationships, and den-sharing in kit foxes. *Journal of Mammalogy* 82: 858-866.
- Ralls, K. 2001. The rarest seals: monk seal conservation. Pages 198-199 in D. Macdonald, ed. *The Encyclopedia of Mammals*, Oxford University Press, Oxford, UK.
- Ralls, K. 2001. Review of *Priorities for the Conservation of Mammalian Diversity: has the panda had its day?* edited by Abigail Entwistle and Nigel Dunstone. Cambridge University Press, Cambridge UK. *Ecology* 82: 2373.
- Ralls, K. and S. L. Mesnick. 2002. Sexual dimorphism. Pages 1071-1078 in *Encyclopedia of Marine Mammals*, W. F. Perrin, B. Wursig, and J. T. M. Thewissen, eds. Academic Press, San Diego.
- Mesnick, S. L. and K. Ralls. 2002. Mating systems. Pages 726-733 in *Encyclopedia of Marine Mammals*. W. F. Perrin, B. Wursig, and J. T. M. Thewissen, eds. Academic Press, San Diego.
- Ralls, K., S. Beissinger and J. F. Cochrane. 2002. Guidelines for using PVA for endangered species management. Pages 521-550 in D. McCullough and S. Beissinger, eds. *Population Viability Analysis*, University Of Chicago Press, Chicago, IL.
- Ralls, K. and D. A. Smith. 2002. Development of a noninvasive approach for carnivore field studies. *Alternatives Today*, Spring Issue, Pages 9-11.
- Haight, R. G., B. Cypher, P. A. Kelly, S. Phillips, H. Possingham, K. Ralls, A. M. Starfield, P. J. White, and D. Williams. 2002. Optimizing habitat protection using demographic models of population viability. *Conservation Biology* 16:1386-1397
- Estes, J. A., B. B. Hatfield, K. Ralls, and J. Ames. 2003. Causes of mortality in California sea otters during periods of population growth and decline. *Marine Mammal Science* 19:198-216.
- Ralls, K. and P. J. White. 2003. Diurnal spacing patterns in kit foxes, a monogamous canid. *Southwestern Naturalist* 48:432-436.
- Smith, D. A., K. Ralls, A. Hurt, B. Adams, M. Parker, B. Davenport, M. Smith, and J. E. Maldonado. 2003. Detection and accuracy rates of dogs trained to find scats of San Joaquin kit foxes. *Animal Conservation* 6:339-346.
- Murdoch, J., K. Ralls, and B. L. Cypher. 2003. Use of night vision technology to study kit fox behavior. *Transactions of the Western Section of the Wildlife Society* 38/39:27-28.
- Haight, R. G., B. Cypher, P. A. Kelly, S. Phillips, K. Ralls, and H. P. Possingham. 2004.

- Optimizing reserve expansion for disjunct populations of San Joaquin kit fox. *Biological Conservation* 117:61-72.
- Ralls, K. and J. Ballou. 2004. Genetic status and management of the California condors. *The Condor* 106: 215-228.
- Moehrensclager, A., B. Cypher, K. Ralls, R. List, and M. Sovada. 2004. Comparative ecology and conservation priorities of swift and kit foxes. Pp. 185-198 in D. W. Macdonald and C. Sillero-Zubiri, eds. *Biology and Conservation of Wild Canids*. Oxford University Press, Oxford.
- Ralls, K. and D. A. Smith. 2004. Latrine use by San Joaquin kit foxes (*Vulpes macrotis mutica*) and coyotes (*Canis latrans*). *Western North American Naturalist* 64:544-547.
- Ortega, J., M. del Rosario Franco, B. A. Adams, K. Ralls, and J. E. Maldonado. 2004. A reliable, noninvasive method for sex determination in the endangered San Joaquin kit fox (*Vulpes macrotis mutica*) and other canids. *Conservation Genetics* 5:715-718.
- Murdoch, J., K. Ralls, and B. Cypher. 2004. Two observations of tree climbing by San Joaquin kit fox. *Southwestern Naturalist* 49:522-523.
- Schwartz, M., K. Ralls, D. Williams, B. L. Cypher, K. L. Pilgrim, and R. C. Fleischer. 2005. Gene flow among San Joaquin kit fox populations in a severely changed ecosystem. *Conservation Genetics* 8:1-13.
- Loew, S., D. F. Williams, K. Ralls, K. Pilgrim, and R. C. Fleischer. 2005. Population structure and genetic variation in the endangered giant kangaroo rat (*Dipodomys ingens*). *Conservation Genetics* 6: 495-510.
- Maldonado, J. E. and K. Ralls. 2005. Estudios de genetica molecular de la zorrilla nortena (*Vulpes macrotis*). Cap. 28 Pp. 325-334. En: *Contribuciones Mastozoologicas en Homenaje a Bernardo Villa* (V. Sanchez-Cordero y R.A. Medellin, eds.). Instituto de Biologia e Instituto de Ecologia, UNAM, CONABIO, Mexico, 680 pp.
- Smith, D. A., K. Ralls, B. L. Cypher, and J. E. Maldonado. 2005. Assessment of scat-detection dog surveys to determine kit fox distribution. *Wildlife Society Bulletin* 33:897-904.
- Smith, D. A., K. Ralls, A. Hurt, B. Adams, M. Parker, and Jesus E. Maldonado. 2006. Assessing reliability of microsatellite genotypes from kit fox fecal samples using genetic and GIS analyses. *Molecular Ecology* 15:387-406.

- Smith, D. A., K. Ralls, B. L. Cypher, H. O. Clark, Jr., P. A. Kelly, D. F. Williams, and J. E. Maldonado. 2006. Relative abundance of endangered San Joaquin kit foxes (*Vulpes macrotis mutica*) based on scat-detection dog surveys. *Southwestern Naturalist* 51:210-219.
- Ralls, K., R. Frankham, and J. D. Ballou. 2007. Inbreeding and outbreeding, Levin SA (ed.) *Encyclopedia of Biodiversity Online Update 1*. pp 1-9. Oxford: Elsevier Ltd.
- Ralls, K., B. Cypher, and L. K. Spiegel. 2007. Social monogamy in kit foxes: formation, association, duration, and dissolution of mated pairs. *Journal of Mammalogy* 88: 1439-1446.
- Jaramillo-Legoretta, A., L. Rojas-Bracho, R. L. Brownell, Jr., A. J. Read, R. R. Reeves, K. Ralls and Barbara L. Taylor. 2007. Saving the vaquita: Immediate action not more data. *Conservation Biology* 21: 1653-1655.
- Murdoch, J. D., K. Ralls, and B. L. Cypher. 2008. Barking sequences in San Joaquin kit foxes (*Vulpes macrotis mutica*). *Southwestern Naturalist* 53:120-126.
- Murdoch, J. D., K. Ralls, B. L. Cypher, and R. P. Reading. 2008. Social interactions among San Joaquin kit foxes (*Vulpes macrotis mutica*). *Journal of Mammalogy* 89: 1087-1093.
- Ralls, K. and S. L. Mesnick. 2008. Sexual dimorphism. Pages 1005-1011 in *Encyclopedia of Marine Mammals*, 2nd Edition. W. F. Perrin, B. Würsig, and J. T. M. Thewissen, eds. Academic Press, San Diego.
- Mesnick, S. L. and K. Ralls. 2008. Mating systems. Pages 712-719 in *Encyclopedia of Marine Mammals*, 2nd Edition. W. F. Perrin, B. Würsig, and J. T. M. Thewissen, eds. Academic Press, San Diego.
- Brownell, R. L., D. P. Nowacek, and K. Ralls. 2008. Hunting cetaceans with sounds: a worldwide review. *Journal of Cetacean Research and Management* 10:81-88.
- Bakker, V. J., D. F. Doak, G. W. Roemer, D. K. Garcelon, T. J. Coonan, K. Ralls, and M. R. Shaw. 2009. Estimating and incorporating ecological drivers and parameter uncertainty into a demographic population viability analysis for the island fox (*Urocyon littoralis*). *Ecological Monographs* 79: 77-108.
- Regan, T., B. Taylor, G. Thompson, J. Cochrane, R. Merrick, S. Swartz, M. Nammack, S. Rumsay, K. Ralls, and M. Runge. 2009. Developing a structure for quantitative listing criteria for the US Endangered Species Act using performance testing. Phase 1 report. U. S. Dept. Commerce, NOAA Tech. Memo. NMFS-SWFCS-437. 168 pp.
- Brownell, R. L., K. Ralls, S. Bauman, and M. M. Poole. 2009. Behavior of melon-headed whales, *Peponocephala electra*, near oceanic islands. *Marine Mammal Science* 25:639-658.

- Newsome, S. D., M. T. Tinker, D. Monson, O.T. Oftedal, K. Ralls, M. L. Fogel, and J. A. Estes. 2009. Using stable isotopes to investigate individual diet specialization in California sea otters (*Enhydra lutris nereis*). *Ecology* 90:261-974.
- Carretta, J. V., K. A. Forney, M. S. Lowry, J. Barlow, J. Baker, D. Johnston, B. Hanson, R. L. Brownell Jr., J. Robbins, D. K. Mattila, K. Ralls, M. M. Muto, D. Lynch, and L. Carswell. 2010. U.S. Pacific Marine Mammal Stock Assessments: 2009. NOAA Technical Memorandum NMFS-SWFSC No. 453, 336 pp.
- Miller, B., R. Reading, K. Ralls, T. Clark, and J. Estes. 2010. Variables influencing carnivore translocation. Pages 61-75 in *Awakening Spirits: wolves in the southern Rockies*, edited by Richard P. Reading, Brian Miller, Amy L. Masching, Rob Edward, and Mike Phillips. Fulcrum Publishing: Golden, Colorado.
- Ralls, K, S. Sharma, D. A. Smith, S. Bremner-Harrison, B. Cypher, and J. Maldonado. 2010. Changes in kit fox defecation patterns during the reproductive season: implications for noninvasive surveys. *Journal of Wildlife Management* 74:1457-1462.
- Newsome, S. D., G. B. Bental. M. T.Tinker, O. Oftedal, K. Ralls, M. L. Fogel, and J. A. Estes. 2010. Variation in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ diet-vibrissae discrimination factors in a wild population of California sea otters (*Enhydra lutris nereis*). *Ecological Applications* 20:1744-1752.
- Bozarth, C., Y. R. Alba, K. Ralls, T. R. Henry, D. A. Smith, and J. E. Maldonado. 2010. An efficient, noninvasive method for discriminating among North American canid species. *Conservation Genetic Resources* 2:173-175.
- Newsome, S., K. Ralls, C. Van Horn Job, M. Fogel, and B. Cypher. 2010. Use of stable isotopes to evaluate reliance on anthropogenic foods by an endangered carnivore: the San Joaquin kit fox. *Journal of Mammalogy* 91:1313-1321.
- Frankham, R., J. D. Ballou, M. D. B. Eldridge, R. C. Lacy, K. Ralls, M. R. Dudash, and C. R. Fenster. 2011. Predicting the risk of outbreeding depression. *Conservation Biology* 25:465-475.
- Carretta, J.V., K.A. Forney, E. Oleson, K. Martien, M.M. Muto, M.S. Lowry, J. Barlow, J. Baker, B. Hanson, D. Lynch, L. Carswell, R.L. Brownell Jr., J. Robbins, D.K. Mattila, K. Ralls, and M.C. Hill. 2011. U.S. Pacific Marine Mammal Stock Assessments: 2010. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-476. 352 p.
- Ralls, K. and J. Ballou. In press. Captive breeding and reintroduction. *Encyclopedia of Biodiversity*, 2nd Edition. Elsevier.

Ralls, K., R. Frankham, and J. Ballou. In press. Inbreeding and outbreeding. *Encyclopedia of Biodiversity*, 2nd Edition. Elsevier.