

JCU ePrints

This file is part of the following reference:

Berger, Lee (2001) *Diseases in Australian frogs*. PhD thesis, James Cook University.

Access to this file is available from:

<http://eprints.jcu.edu.au/17586>



BIBLIOGRAPHY

- Alberts, B., Bray, D., Lewis, J., Raff, M., Roberts, K., Watson, J. D. 1983. *Molecular Biology of the Cell*. Garland Publishing, New York.
- Alderman, D. J. 1982. *In vitro* testing of fisheries chemotherapeutics. *Journal of Fish Diseases*. 5: 113-123.
- Alford, R. A., Richards, S. J. 1997. Lack of evidence for epidemic disease as an agent in the catastrophic decline of Australian rain forest frogs. *Conservation Biology*. 11: 1026-1029.
- Alford, R. A., Richards, S. J. 1999. Global amphibian declines: A problem in applied ecology. *Annual Reviews in Ecology and Systematics*. 30: 133-65.
- Alves de Matos, A. P., Paperna, I. 1993. Ultrastructure of erythrocytic virus of the South African anuran *Ptychocheilichthys anchietae*. *Diseases of Aquatic Organisms*. 16: 105-109.
- Amborski, R. L., Snider, T. G., Culley, D. D. 1983. A non-hemolytic, group B *Streptococcus* infection of cultured bullfrogs, *Rana catesbiana*, in Brazil. *Journal of Wildlife Diseases*. 19: 180-184.
- Anderson, W. A. D., Kissane, J. M. 1977. *Pathology*. 7th edition. The C.V. Mosby Company, Saint Louis, USA.
- Anon. 1997. High hopes for fungal treatment. *Fish Farming International*. 24: 20.
- Anver, M. R., Pond, C. L. 1984. Biology and diseases of amphibians. Pp 427-447. In: *Laboratory Animal Medicine*. Eds J. G. Fox, B. J. Cohen, F. M. Loew. Academic Press, New York.
- Aplin, K., Kirkpatrick, P. 2000. Chytridiomycosis in southwest Australia: historical sampling documents the date of introduction, rates of spread and seasonal epidemiology, and sheds new light on chytrid ecology. p 24. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- Asashima, M., Oinuma, T., Meyer-Rochow, B. 1987. Tumors in Amphibia. *Zoological Science*. 4: 411-425.
- Baldassi, L., Hipolito, M., de Souza Junior, F., de Souza, C. 1995. Clostridia presence in bullfrog (*Rana catesbiana* Shaw, 1802) mouth myiasis lesions. *B. Inst. Pesca*. 22: 95-102.
- Bardsley, J. E., Harmsen, R. 1973. The Trypanosomes of Anura. *Advances in Parasitology*. 11: 1-73.
- Barr, D. J. S. 1990. Phylum Chytridiomycota. Pp 454-466. In: *Handbook of Protozoa*. Eds L. Margulis, J. O. Corliss, M. Melkonian, D. J. Chapman. Jones and Bartlett, Boston.
- Barr, D. J. S. 2000. Chytridiomycota. Pp 93-112. In: *The Mycota VII, Part A*. Eds. McLaughlin, McLaughlin, Lemke. Springer-Verlag, Berlin.

- Bartnicki-Garcia, S., Sing, V. O. 1986. Adhesion of zoospores of *Phytophthora* to solid surfaces. Pp. 279-283. In: Zoosporic Fungi in Teaching and Research. Eds M. S. Fuller, A. Jaworski. Dept of Botany, University of Georgia, Athens, USA.
- Barton D. P. 1994. A checklist of helminth parasites of Australian amphibia. Records of the South Australian Museum. 27: 13-30.
- Barton, D. P. 1997. Introduced animals and their parasites: The cane toad, *Bufo marinus*, in Australia. Australian Journal of Ecology. 22: 316-324.
- Barton, D. P. 1999. Ecology of helminth communities in tropical Australian amphibians. International Journal for Parasitology. 29: 921-926.
- Barton, D. P., Richards, S. P. 1996. Helminth infracommunities in *Litoria genimaculata* from Birthday Creek, an upland rainforest stream in northern Queensland, Australia. International Journal for Parasitology. 26: 1381-1385.
- Beebee, T. J. C., Flower, R. J., Stevenson, A. C., Patrick, S. T., Appleby, P. G., Fletcher, C., Marsh, C., Natkanski, J., Rippey, B., Battarbee, R. W. 1990. Decline of the natterjack toad *Bufo calamita* in Britain: Palaeoecological, documentary and experimental evidence for breeding site acidification. Biological Conservation. 53: 1-20.
- Beneke, E. S. 1978. Dermatiaceous fungi in laboratory-housed frogs. Pan American Health Organisation Scientific Publication, Washington DC. 356: 101-108.
- Bennati R., Bonetti M., Lavazza A., Gelmetti, D. 1994. Skin lesions associated with herpesvirus-like particles in frogs (*Rana dalmatina*). Veterinary Record. 135: 625-626.
- Bennett, L. J. 1978. The immunological response of amphibia to Australian spargana. Journal of Parasitology. 64: 756-759.
- Bentley, P. J. 1966. Adaptations of amphibia to arid environments. Science. 152: 619-623.
- Berger, L., Speare, R. What to do with ill or dead frogs.
<http://www.jcu.edu.au/school/phtm/PHTM/frogs/pmfrog.htm> July, 1998.
- Berger, L., Speare, R., Daszak, P., Green, D. E., Cunningham, A. A., Goggin, C. L., Slocombe, R., Ragan, M. A., Hyatt, A. D., McDonald, K. R., Hines, H. B., Lips, K. R., Marantelli, G., Parkes, H. 1998. Chytridiomycosis causes amphibian mortality associated with population declines in the rain forests of Australia and Central America. Proceedings of the National Academy of Sciences, USA. 95: 9031-9036.
- Berger, L., Speare, R., Humphrey, J. 1997. Mucormycosis in a free-ranging green tree frog from Australia. Journal of Wildlife Diseases. 33: 903-907.
- Berger, L., Speare, R., Hyatt A. 1999a. Chytrid fungi and amphibian declines: Overview, implications and future directions. Pp 23-33. In: Declines and Disappearances of Australian Frogs. Ed A. Campbell. Environment Australia, Canberra.

- Berger, L., Volp, K., Mathews, S., Speare, R., Timms, P. 1999b. *Chlamydia pneumoniae* in a free-ranging giant barred frog (*Mixophyes iteratus*) from Australia. *Journal of Clinical Microbiology*. 37: 2378-2380.
- Berger, L., Speare, R., Kent, A. 2000. Diagnosis of chytridiomycosis in amphibians by histologic examination. *Zoos' Print Journal*. 15: 184-190.
- Berger, L., Speare, R., Thomas, A., Hyatt, A. 2001. Mucocutaneous fungal disease in tadpoles of *Bufo marinus* in Australia. *Journal of Herpetology*. 35: 330-335.
- Bidwell, J. R., Gorrie, J. R. 1995. Acute toxicity of a herbicide to selected frog species. Department of Environmental Protection, Technical Series 79, Perth.
- Blaustein, A. R., Edmond, B., Kiesecker, J. M., Beatty, J. J., Hokit, D. G. 1995. Ambient ultraviolet radiation causes mortality in salamander eggs. *Ecological Applications*. 5: 740-743.
- Blaustein, A. R., Hokit, D. G., O'Hara, R. K., Holt, R. A. 1994. Pathogenic fungus contributes to amphibian losses in the Pacific northwest. *Biological Conservation*. 67: 251-254.
- Bly, D. E., Lawson, L. A., Dales, D. J., Szalai, A. J., Durborow, R. M., Clem, L. W. 1992. Winter saprolegniasis in channel catfish. *Diseases of Aquatic Organisms*. 13: 155-164.
- Bly, J. E., Lawson, L. A., Szalai, A. J., Clem, L. W. 1993. Environmental factors affecting outbreaks of winter saprolegniasis in channel catfish (*Ictalurus punctatus*). *Journal of Fish Diseases*. 16: 541-549.
- Bly, J. E., Quiniou, S. M-A., Lawson, L. A., Clem, L. W. 1996. Therapeutic and prophylactic measures for winter saprolegniasis in channel catfish. *Diseases of Aquatic Organisms*. 24: 25-33.
- Bonin, J., Desgranges, J. L., Rodrigue, J., Ouellet, M. 1997. Anuran species richness in agricultural landscapes of Québec: Foreseeing long-term results of road call surveys. *Herpetological Conservation*. 1: 141-148.
- Bosch, J., Martínez-Solano, I., García-París, M. 2001. Evidence of a chytrid fungus infection involved in the decline of the common midwife toad (*Alytes obstetricans*) in protected areas of central Spain. *Biological Conservation*. 97: 331-337.
- Bowie, J. H., Wegener, K. L., Chia, B. C. S., Wabnitz, P. A., Carver, J. A., Tyler, M. J., Wallace, J. C. 1999. Host defence antibacterial peptides from skin secretions of Australian amphibians. The relationship between structure and activity. *Protein and Peptide Letters*. 6: 259-269.
- Boyle, D., Hyatt, A., Daszak, P., Longcore, J. 2001. Cryopreservation of *Batrachochytrium dendrobatidis* and other chytridiomycetes. (in prep).
- Bradford, D. F. 1991. Mass mortality and extinction in a high elevation population of *Rana muscosa*. *Journal of Herpetology*. 25: 174-177.
- Brattstrom, B. H. 1961. Thermoregulation in tropical amphibians. *Yearbook of the American Philosophical Society for 1960*. 284-287.

- Brattstrom, B. H. 1968. Thermal acclimation in anuran amphibians as a function of latitude and altitude. *Comparative Biochemistry and Physiology*. 24: 93-111.
- Brayton, C. 1992. Wasting disease associated with cutaneous and renal nematodes, in commercially obtained *Xenopus laevis*. *Annals of the New York Academy of Science*. 653: 197-201.
- Briggs, R. T., Burton, P. R. 1973. Fine structure of an amphibian leukocyte virus. *Journal of Submicroscopic Cytology and Pathology*. 5: 71-78.
- Broomhall, S. D., Osborne, W. S., Cunningham, R. B. 2000. Comparative effects of ambient ultraviolet-B radiation on two sympatric species of Australian frogs. *Conservation Biology*. 14: 420-427.
- Broz, O., Privora, M. 1951. Two skin parasites of *Rana temporaria*: *Dermocystidium ranae* Guyenot & Naville and *Dermosporidium granulorum* n. sp. *Parasitology*. 42: 65-69.
- Brumpt, E. 1924. Un cas de rupture de la rate avec hémopéritoine au cours d'une infection expérimentale à *Trypanosoma inopinatum* chez la grenouille verte (*Rana esculenta*). *Annales de Parasitologie*. 4: 325-326.
- Bureau of Meteorology web site, <http://www.bom.gov.au>, accessed May 2001.
- Calef, G. W. 1973. Natural mortality of tadpoles in a population of *Rana aurora*. *Ecology*. 54: 741-758.
- Canning, E. U., Elkan, E., Trigg, P. I. 1964. *Plistophora myotrophica* spec. nov., causing high mortality in the common toad *Bufo bufo* L., with notes on the maintenance of *Bufo* and *Xenopus* in the laboratory. *Journal of Protozoology*. 11: 157-166.
- Carey, C. 1993. Hypothesis concerning the causes of the disappearance of boreal toads from the mountains of Colorado. *Conservation Biology*. 7: 355-362.
- Carey, C., Cohen, N., Rollins-Smith, L. A. 1999. Amphibian declines: An immunological perspective. *Developmental Comparative Immunology*. 23: 459-472.
- Carey, C., Maniero, G. D., Stinn, J. F. 1996. Effect of cold on immune function and susceptibility to bacterial infection in toads (*Bufo marinus*). In: *Adaptations to the Cold: Tenth International Hibernation Symposium*. Eds Hulbert, G. F., Nicol, S. C. Armidale: University of New England Press.
- Carr, A. H., Amborski, R. L., Culley, D. D., Amborski, G. F. 1976. Aerobic bacteria in the intestinal tracts of bullfrogs (*Rana catesbiana*) maintained at low temperatures. *Herpetologica*. 32: 239-244.
- Carter, G. R. 1986. Introduction to the fungi and fungous infections. Pp 223-227. In: *Essentials of Veterinary Bacteriology and Microbiology*. 3rd edn. Lea and Febiger, Philadelphia.
- Cheville, N. F. 1996. *Ultrastructural Pathology. An Introduction to Interpretation*. Iowa State University Press, Ames, USA.

- Cicmanec, J. L., Ringler, D. H., Beneke, E. S. 1973. Spontaneous occurrence and experimental transmission of the fungus, *Fonsecaea pedrosoi*, in the marine toad, *Bufo marinus*. *Laboratory Animal Science*. 23: 43-47.
- Cogger, H. G. 1992. *Reptiles and Amphibians of Australia*. Reed Books, Sydney.
- Collazos, M. E., Ortega, E., Barriga, C. 1994. Effect of temperature on the immune system of a cyprinid fish (*Tinca tinca*, L). Blood phagocyte function at low temperature. *Fish and Shellfish Immunology*. 4: 231-238.
- Connolly, J. H., Obendorf, D. L., Whittington, R. J. 1999. Haematological, serum biochemical and serological features of platypuses with and without mycotic granulomatous dermatitis. *Australian Veterinary Journal*. 77: 809-813.
- Cooke, A. S. 1972. Indications of recent changes in status in the British Isles of the frog (*Rana temporaria*) and the toad (*Bufo bufo*). *Journal of Zoology*. 167: 161-178.
- Corn, P. S. 1998. Effects of ultraviolet radiation on boreal toads in Colorado. *Ecological Applications*. 8: 18-26.
- Corn, P. S., Fogleman, J. C. 1984. Extinction of montane populations of the Northern Leopard Frog (*Rana pipiens*) in Colorado. *Journal of Herpetology*. 18: 147-152.
- Cort, W. W., Brackett, S. 1938. A new strigeid cercaria which produces a bloat disease of tadpoles. *Journal of Parasitology*. 24: 263-271.
- Creeper, J. H., Main, D. C., Berger, L., Huntress, S., Boardman, W. 1998. An outbreak of mucormycosis in slender tree frogs (*Litoria adelensis*) and white-lipped tree frogs (*Litoria infrafrenata*). *Australian Veterinary Journal*. 76: 761-762.
- Crump, M. L., Pounds, J. A. 1985. Lethal parasitism of an aposematic anuran (*Atelopus varius*) by *Notochaeta bufonivora* (Diptera: Sarcophagidae). *Journal of Parasitology*. 7: 588-591.
- Cullen, B. R., Owens, L., Whittington, R. J. 1995. Experimental infection of Australian anurans (*Limnodynastes terraereginae* and *Litoria latopalmata*) with Bohle iridovirus. *Diseases of Aquatic Organisms*. 23: 83-92.
- Cullen, B. R., Owens, L. O. 2000. Ranaviruses in amphibians. p 31. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- Cunningham, A. A., Langton, T. E. S., Bennett, P. M., Lewin, J. F., Drury, S. E. N., Gough, R. E., MacGregor, S. K. 1995. Investigations into unusual mortalities of the common frog (*Rana temporaria*) in Britain. Pp 19-27. In: *Proceedings of the Fifth International Colloquium on the Pathology of Reptiles and Amphibians*. Ed P. Zwart, G. Matz. The Netherlands.
- Cunningham A. A., Langton T. E. S., Bennett P. M., Lewin J. F., Drury S. E. N., Gough R. E., MacGregor S. K. 1996a. Pathological and microbiological findings from incidents of unusual mortality of the common frog (*Rana temporaria*). *Philosophical Transactions of the Royal Society of London B*. 351:1539-1557.

- Cunningham A. A., Sainsbury A. W., Cooper J. E. 1996b. Diagnosis and treatment of a parasitic dermatitis in a laboratory colony of African clawed frogs (*Xenopus laevis*). *Veterinary Record*. 138: 640-642.
- Czeczuga, B., Muszy ska, E., Krzemi ska, A. 1998. Aquatic fungi growing on the spawn of certain amphibians. *Amphibia-Reptilia*. 19: 239-251.
- Daszak P., Berger, L., Cunningham, A. A., Hyatt, A. D., Green, D. E., Speare, R. 1999. Emerging infectious diseases and amphibian population declines. *Emerging Infectious Diseases*. 5: 735-748.
- Daszak, P., Cunningham, A. A., Hyatt, A. D. 2001. Draft guidelines for international translocation of amphibians with respect to infectious diseases. Attachment 6. Pp 172-178. In: Speare, R. and Steering Committee of Getting the Jump on Amphibian Disease. Developing management strategies to control amphibian diseases: Decreasing the risks due to communicable diseases. School of Public Health and Tropical Medicine, James Cook University, Townsville.
- Dawson, P., Weste, G. 1985. Changes in the distribution of *Phytophthora cinnamomi* in the Brisbane Ranges National Park between 1970 and 1980-81. *Australian Journal of Botany*. 33: 309-315.
- de Sousa, M. A., Weigl, D. R. 1976. The viral nature of *Toddia* Franca, 1912. *Memorias do Instituto Oswaldo Cruz*. 74: 213-230.
- Delvignier, B. L. J. 1986. *Myxidium immersum* (Protozoa: Myxosporidia) of the cane toad, *Bufo marinus*, in the Australian anura, with a synopsis of the genus in amphibians. *Australian Journal of Zoology*. 34: 843-853.
- Delvignier, B. L. J., Freeland, W. J. 1988. Protozoan parasites of the cane toad, *Bufo marinus*, in Australia. *Australian Journal of Zoology*. 36: 301-316.
- Delvignier, B. L. J., Freeland, W. J. 1989. On some trypanosomes of the Australian anura. *Proceedings of the Royal Society of Queensland*. 100: 79-87.
- Dhaliwal, S. S., Griffiths, D. A. 1963. Fungal disease in Malayan toads: an acute lethal inflammatory reaction. *Nature*. 197: 467-569.
- Dowell, S. F. 2001. Seasonal variation in host susceptibility and cycles of certain infectious diseases. *Emerging Infectious Diseases*. 7: 369-374.
- Drost, C. A., Fellers, G. M. 1996. Collapse of a regional frog fauna in the Yosemite area of the California Sierra Nevada, USA. *Conservation Biology*. 10: 414-425.
- Duellman, W. E., Trueb, L. 1986. Integumentary, sensory, and visceral systems. Pp 367-386. In: *Biology of Amphibians*, McGraw-Hill Book Company, New York.
- Dusi, J. L. 1949. The natural occurrence of "red leg", *Pseudomonas hydrophila*, in a population of American toads, *Bufo americanus*. *Ohio Journal of Science*. 49: 70-71.

- Elkan, E. 1965. Myiasis in Australian frogs. *Annals of Tropical Medicine and Parasitology*. 59: 51-54.
- Elkan, E. 1968. Mucopolysaccharides in the anuran defense against desiccation. *Journal of Zoology, London*. 155: 19-53.
- Elkan, E., Murray, R. W. 1951. A larval trematode infection of the lateral line system of the toad *Xenopus laevis* (Daudin). *Proceedings of the Zoological Society*. 122: 121-126.
- Elkan, E., Philpot, C. M. 1973. Mycotic infections in frogs due to a *Phialophora*-like fungus. *Sabouraudia*. 11: 99-105.
- El-Sharouny, H. M., Badran, R. A. M. 1995. Experimental transmission and pathogenicity of some zoosporic fungi to *Tilapia* fish. *Mycopathologia*. 132: 95-103.
- Emerson, H., Norris, C. 1905. "Red-leg" - an infectious disease of frogs. *Journal of Experimental Medicine*. 7: 32-58.
- Esteban, M., Sanchiz, B. 2000. Differential growth and longevity in low and high altitude *Rana iberica* (Anura, Ranidae) *Herpetological Journal*. 10: 19-26.
- Fellers, G. 1997. Status of declining amphibians in California, USA. p 67. In: Abstracts of the Third World Congress of Herpetology. Ed Z. Ro ek, S. Hart. Prague, 2-10 August 1997.
- Fenner, F. and Ratcliffe, F. N. 1965. *Myxomatosis*, Cambridge University Press, New York.
- Fijan, N., Matasin, Z., Petrinc, Z., Valpotic, I., Zwillenberg, L. O. 1991. Isolation of an iridovirus-like agent from the green frog (*Rana esculenta* L.). *Veterinarski Arhiv, Zagreb*. 61: 151-158.
- Fisher, R. N., Shaffer, H. B. 1996. The decline of amphibians in California's Great Central Valley. *Conservation Biology*. 10: 1387-1397.
- Flannery, T. F. 1994. *The Future Eaters*. Reed, Melbourne.
- Flynn, R. J. 1973. Parasites of Laboratory Reptiles and Amphibians. Pp 507-642. In: *Parasites of Laboratory Animals*. Iowa State University Press. Ames, USA.
- Fox, H. 1994. The structure of the integument. Pp 1-32. In: *Amphibian Biology, Volume 1: The Integument*. Eds H. Heatwole, G. T. Barthalmus. Surrey Beatty and Sons, Chipping Norton, Australia.
- Frank, W. 1976. Mycotic infections in amphibians and reptiles. Pp 73-88. In: *Proceedings of the Third International Wildlife Disease Conference*. Ed L. A. Page. Plenum Press, New York.
- Frank, W., Roester, U., Scholer, H. J. 1974. Sphaerule formation by a *Mucor* species in the internal organs of amphibia. *Zentralblatt für Bakteriologie und Parasitkunde*. 226: 405-417.
- Fraser, C. M. (ed) 1991. *Merck Veterinary Manual*, 7th edition. 1991 Merck and Co., New Jersey, USA.
- Freeland, W. J. 1985. The need to control cane toads. *Search*. 16: 211-215.
- Fuller, M. S. 1996. The flagellated fungal spore. Pp 161-192. In: *A Century of Mycology*. Ed B. Sutton. Cambridge University Press.

- Gillespie, G., Hero, J.-M. 1999. Potential impacts of introduced fish and fish translocations on Australian amphibians. Pp 131-144. In: Declines and Disappearances of Australian Frogs. Ed A. Campbell. Environment Australia, Canberra.
- Gillespie, G., Hines, H. 1999. Status of temperate riverine frogs in south-eastern Australia. Pp 109-130. In: Declines and Disappearances of Australian Frogs. Ed A. Campbell. Environment Australia, Canberra.
- Gillespie, G., Marantelli, G. 2000. The role of the amphibian chytridiomycete fungus in population dynamics of the spotted tree frog (*Litoria spenceri*) a declining riverine species in south-eastern Australia. p 45. In: Getting the Jump on Amphibian Disease: Conference and Workshop Compendium. Cairns, 26-30 August 2000.
- Glorioso, J. C., Amborski, R. L., Amborski, G. F., Culley, D. C. 1974. Microbiological studies on septicemic bullfrogs (*Rana catesbiana*). American Journal of Veterinary Research. 35: 1241-1245.
- Gosner, K. L. 1960. A simplified table for staging anuran embryos and larvae with notes on identification. Herpetologica. 16: 183-190.
- Gould, A. R., Hyatt, A. D., Hengstberger, S. H., Whittington, R. J., Coupar, B. E. H. 1995. A polymerase chain reaction (PCR) to detect epizootic haematopoietic necrosis virus and Bohle iridovirus. Diseases of Aquatic Organisms. 22: 211-215.
- Graczyk, T. K., Cranfield, M. R., Bicknese, E. J., Wisnieski, A. P. 1996. Progressive ulcerative dermatitis in a captive, wild-caught South American giant tree frog (*Phyllomedusa bicolor*) with microsporidial septicemia. Journal of Zoo and Wildlife Medicine. 27: 522-527.
- Granoff, A. 1989. Viruses of amphibia: an historical perspective. Pp 3-12. In: Viruses of Lower Vertebrates. Eds W. Ahne, E. Kurstak. Springer-Verlag, Berlin.
- Groff, J. M., Mughannam, A., McDowell, T. S., Wong, A., Dykstra, M. J., Frye, F. L., Hedrick R.P. 1991. An epizootic of cutaneous zygomycosis in cultured dwarf African clawed frogs (*Hymenochirus curtipes*) due to *Basidiobolus ranarum*. Journal of Medical and Veterinary Mycology. 29: 215-223.
- Gruia-Gray, J., Desser, S. S. 1992. Cytopathological observations and epizootiology of frog erythrocytic virus in bullfrogs (*Rana catesbiana*). Journal of Wildlife Diseases. 28: 34-41.
- Hayes, M. P., Jennings, M. R. 1986. Decline of ranid frog species in western North America: Are bullfrogs (*Rana catesbiana*) responsible? Journal of Herpetology. 20: 490-509.
- Hengstberger, S. G., Hyatt, A. D., Speare, R., Coupar, B. E. H. 1993. Comparison of epizootic haematopoietic necrosis and Bohle iridoviruses, recently isolated Australian iridoviruses. Diseases of Aquatic Organisms. 15: 93-107.
- Hero, J.-M., Gillespie, G. R. 1997. Epidemic disease and amphibian declines in Australia. Conservation Biology. 11: 1023-1025.

- Hero, J.-M., Hines, H., Meyer, E., Morrison, C., Streatfeild, C., Roberts, L. 1998. New records of "declining" frogs in Queensland (- February 1998). *Froglog* 29.
- Heyer, W. R., Rand, A. R., Goncalvez da Cruz, C. A., Peixoto, O. L. 1988. Decimations, extinctions, and colonizations of frog populations in southeast Brazil and their evolutionary implications. *Biotropica*. 20: 230-235.
- Hill, B. D., Green, P. E., Lucke, H. A. 1997. Hepatitis in the green tree frog (*Litoria caerulea*) associated with infection by a species of *Myxidium*. *Australian Veterinary Journal*. 12: 910-911.
- Hines, H., Mahony, M., McDonald, K. 1999. An assessment of frog declines in wet subtropical Australia. Pp 44-63. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.
- Hird, D. W., Diesch, S. L., McKinnell, R. G., Gorham, E., Martin, F. B., Kurtz, S. W., Dubrovlny, C. 1981. *Aeromonas hydrophila* in wild-caught frogs and tadpoles (*Rana pipiens*) in Minnesota. *Laboratory Animal Science*. 31: 166-169.
- Honeyman, V. L., Mehren, K. G., Barker, I. K., Crawshaw, G. J. 1992. *Bordetella* septicaemia and chlamydiosis in eyelash leaf frogs (*Ceratobatrachus guentheri*). p 168. In: *Proceedings of the Joint Meeting of the American Association of Zoo Veterinarians and American Association of Wildlife Veterinarians*.
- Howerth, E. W. 1984. Pathology of naturally occurring chlamydiosis in African clawed frogs (*Xenopus laevis*). *Veterinary Pathology*. 21: 28-32.
- Hubbard, G. B. 1981. *Aeromonas hydrophila* infection in *Xenopus laevis*. *Laboratory Animal Science*. 31: 297-300.
- Hulst, F. 1999. Amphibian care and medical management. Pp 121-146. In: *Proceedings of Wildlife in Australia, Health Care and Management, Proc 327, Westerns Plain Zoo, Dubbo, NSW, September 1999*. Published by Post-graduate Foundation in Veterinary Science, University of Sydney.
- Hunter, D., Osborne, W., Marantelli, G., Green, K. 1999. Implementation of a population augmentation project for remnant populations of the southern corroboree frog (*Pseudophryne corroboree*). Pp 158-167. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.
- Hyatt, A. D., Berger, L., Olsen, V., Boyle, D., Hengstberger, S. 2000. Advances in the development of diagnostic assays for the detection of the amphibian chytrid fungus (genus *Batrachochytrium*). p 25. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- James, T. Y., Porter, D., Leander, C. A., Vilagly, R., Longcore, J. E. 2000. Molecular phylogenetics of the Chytridiomycota supports the utility of ultrastructural data in chytrid systematics. *Canadian Journal of Botany*. 78: 336-350.

- Jay, J. M., Pohley, W. J. 1981. *Dermosporidium penneri* sp. n. from the skin of the American toad, *Bufo americanus* (Amphibia: Bufonidae). *Journal of Parasitology*. 67: 108-110.
- Johnson, P. T. J., Lunde, K. B., Ritchie, E. G., Launer, A. E. 1999. The effect of trematode infection on amphibian limb development and survivorship. *Science*. 284: 802-804.
- Johnson, C. R. 1976. Herbicide toxicities to some Australian anurans and the effect of subacute dosages on temperature tolerance. *Zoological Journal of the Linnean Society*. 59: 79-83.
- Johnston, T. H., Bancroft, M. J. 1918. A parasite, *Myxobolus hylae* sp. nov. of the reproductive organs of the golden swamp frog, *Hyla aurea*. *Australian Zoologist*. 1: 170-175.
- Jubb, K. V. F., Kennedy, P. C., Palmer, N. 1992. *Pathology of domestic animals*. 4th edn. Academic Press, Orlando.
- Kagarise Sherman, C., Morton M. L. 1993. Population declines of Yosemite toads in the eastern Sierra Nevada of California. *Journal of Herpetology*. 27: 186-198.
- Katz, U., Nagel, W. 1994. Biophysics of ion transport across amphibian skin. Pp 98-131. In: *Amphibian Biology, Volume 1: The Integument*. Ed H. Heatwole, G. T. Barthalmus. Surrey Beatty and Sons, Chipping Norton, Australia.
- Kaung, H. L. C. 1975. Development of beaks of *Rana pipiens* larvae. *Anatomical Record*. 182: 401-414.
- Khan, M. S. 1990. The impact of human activities on the status and distribution of amphibians in Pakistan. *Hamdryad*. 5: 21-24.
- Kiesecker, J. M., Blaustein, A. R. 1995. Synergism between UV-B radiation and a pathogen magnifies embryo mortality in nature. *Proceedings of the National Academy of Sciences, USA*. 92: 11049-11052.
- Lande, S. P., Guttman, S. I. 1973. The effects of copper sulfate on the growth and mortality rate of *Rana pipiens* tadpoles. *Herpetologica*. 29: 22-26.
- Langdon, J. S. 1989. Experimental transmission and pathogenicity of epizootic haemopoietic necrosis virus (EHNV) in redfin perch, *Perca fluviatilis* L., and 11 other teleosts. *Journal of Fish Diseases*. 12: 295-310.
- Langdon, J. S., Humphrey, J. D., Williams, L. M., Hyatt, A. D., Westbury, H. A. 1986. First virus isolation from Australian fish: an iridovirus-like pathogen from redfin perch, *Perca fluviatilis* L. *Journal of Fish Diseases*. 9: 263-268.
- Laurance, W. F. 1996. Catastrophic declines of Australian rain forest frogs: is unusual weather responsible? *Biological Conservation*. 77: 203-212.
- Laurance, W. F., McDonald, K. R., Speare, R. 1996. Epidemic disease and the catastrophic decline of Australian rain forest frogs. *Conservation Biology*. 10: 406-413.
- Laurance, W. F., McDonald, K. R., Speare, R. 1997. In defense of the epidemic disease hypothesis. *Conservation Biology*. 11: 1030-1034.

- Leberg, P. L., Vrijenhoek, R. C. 1994. Variation among desert topminnows in their susceptibility to attack by exotic parasites. *Conservation Biology*. 8: 419-424.
- Lilley, J. H., Callinan, R. B., Chinabut, S., Kanchanakhan, S., MacRae, I. H., Phillips, M. J. 1998. Epizootic Ulcerative Syndrome (EUS) Technical Handbook. The Aquatic Animal Health Research Institute. Bangkok, Thailand.
- Lio-Po, G. D., Baticados, M. C., Lavilla, C. R., Sanvictores, M. E. 1985. *In vitro* effects of fungicides on *Haliphthoros philippinensis*. *Journal of Fish Diseases*. 8: 359-365.
- Lips, K. R. 1998. Decline of a tropical montane fauna. *Conservation Biology*. 12: 106-117.
- Lips, K. R. 1999. Mass mortality and population declines of anurans at an upland site in western Panama. *Conservation Biology*. 13: 117-125.
- Long, L. E., Saylor, L. S., Soule, M. E. 1995. A pH/UV-B synergism in amphibians. *Conservation Biology*. 9: 1301-1303.
- Longcore, J. E. 1993. Morphology and zoospore ultrastructure of *Lacustromyces hiemalis* gen. et sp. nov. (Chytridiales). *Canadian Journal of Botany*. 71: 414-425.
- Longcore, J. E. 1995. Morphology and zoospore ultrastructure of *Entophlyctis luteolus* sp. nov. (Chytridiales): Implications for chytrid taxonomy. *Mycologia*. 87: 25-33.
- Longcore, J. E. 2000. *Batrachochytrium dendrobatidis*, the "frog chytrid". p 21. In: Getting the Jump on Amphibian Disease: Conference and Workshop Compendium. Cairns, 26-30 August 2000.
- Longcore, J. E. 2000. Recognizing, isolating and culturing *Batrachochytrium dendrobatidis* from amphibians. Pp 52-54. In: Getting the Jump on Amphibian Disease: Conference and Workshop Compendium. Cairns, 26-30 August 2000.
- Longcore, J. E., Pessier, A. P., Nichols, D. K. 1999. *Batrachochytrium dendrobatidis* gen. et sp. nov., a chytrid pathogenic to amphibians. *Mycologia*. 91: 219-227.
- Low, T. 1999. The sick and dying – exotic diseases strike. Pp 122-128. In: Feral Future: the untold story of Australia's exotic invaders. Viking, Australia.
- Lucké, B. 1934. A neoplastic disease of the kidney of the frog, *Rana pipiens*. *American Journal of Cancer*. 1934. 20: 352-379.
- Lucké, B. 1938. Carcinoma in the leopard frog: Its probable causation by a virus. *Journal of Experimental Medicine*. 63: 457-468.
- Luna, L. 1968. Manual of histological staining methods of the Armed Forces Institute of Pathology, 3rd ed. McGraw-Hill Book Company, New York.
- Lynch, M. 2001. Amphibian quarantine protocols: Melbourne Zoo. Attachment 6. Pp 179-183. In: Speare, R. and Steering Committee of Getting the Jump on Amphibian Disease. Developing management strategies to control amphibian diseases: Decreasing the risks due to communicable diseases. School of Public Health and Tropical Medicine, James Cook University, Townsville.

- Mahony, M. J. 1996. The decline of the green and golden bell frog *Litoria aurea* viewed in the context of declines and disappearances of other Australian frogs. *Australian Zoologist*. 30: 237-247.
- Mahony, M. 1999. Review of the declines and disappearances within the bell frog species group (*Litoria aurea* species group) in Australia. Pp 81-93. In: *Declines and Disappearances of Australian Frogs*. Ed by A. Campbell. Environment Australia, Canberra.
- Mahony, M. 2000. Prevalence of Chytrid in populations of frogs in eastern New South Wales. p 44. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- Mahony, M., Clulow, J., Browne, R., Pomeroy, M. 1999. Declines and disappearances of frogs: risk assessment and contingency strategies. Pp 202-211. In: *Declines and Disappearances of Australian Frogs*. Ed by A. Campbell. Environment Australia, Canberra.
- Malvin, M. 1994. Cardiovascular regulation of cutaneous gas exchange. Pp 147-167. In: *Amphibian Biology*. Vol 1 The Integument. Ed H. Heatwole. Surrey Beatty and Sons, Chipping Norton, Australia.
- Maniero, G. D., Carey, C. 1997. Changes in selected aspects of immune function in the leopard frog, *Rana pipiens*, associated with exposure to cold. *Journal of Comparative Physiology*. 167: 256-263.
- Mann, R., Bidwell, J. 1999. Toxicological issues for amphibians in Australia. Pp 185-201. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.
- Marantelli, G. 1999. Husbandry: science or art? - Are captive technologies ready to contribute to recovery processes for Australian frogs? Pp 168-176. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.
- Marantelli, G., Berger, L., McInnes, K. 2000. Investigations into the treatment of *Batrachochytrium* in frogs and tadpoles. p 27. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- Marantelli, G., Hobbs, R. 2000. Disease vectors and the community: from lost frogs to frog friendly gardens - how do we help frogs while containing disease spread? p 49. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- Marquez, R., Olmo, J. L., Bosch, J. 1995. Recurrent mass mortality of larval midwife toads *Alytes obstetricans* in a lake in the Pyrenean mountains. *Herpetological Journal*. 5: 287-289.
- Marshall, C. J. 1998. The reappearance of *Taudactylus* (Anura: Myobatrachidae) in north Queensland streams. *Pacific Conservation Biology*. 4: 39-41.
- Mastura, A. B., Ambu, S., Hasnah, O., Rosli, R. 1996. Spargana infection of frogs in Malaysia. *Southeast Asian Journal of Tropical Medical Public Health*. 27: 51-52.

- May, R. 1988. Conservation and Disease. *Conservation Biology*. 2: 28-30.
- McCracken, H. 1994. Husbandry and diseases of captive reptiles. Pp 461-541. In: Proceedings 233 Post-Graduate Committee in Veterinary Science, University of Sydney.
- McDonald, K. 1990. *Rheobatrachus* Liem and *Taudactylus* Straughan & Lee (Anura: Leptodactylidae) in Eungella National Park, Queensland: distribution and decline. *Transactions of the Royal Society of South Australia*. 114: 187-194.
- McDonald, K. R. 1992. Distribution patterns and conservation status of north Queensland rainforest frogs. Conservation Technical Report No. 1. Queensland Department of Environment and Heritage, Brisbane.
- McDonald, K., Alford, R. 1999. A review of declining frogs in northern Queensland. Pp 14-22. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.
- McDonald, K. R., Davies, M. 1990. Morphology and biology of the Australian tree frog *Litoria pearsoniana* (Copland) (Anura: Hylidae). *Transactions of the Royal Society of South Australia*. 114: 145-156.
- McInnes, K. 1999. An investigation into the treatment of chytrid fungus in the larval stages of Australian amphibians. Unpub Honours thesis, School of Ecology and Environment, Deakin University, October 1999.
- McKinnell, R. G. 1969. Lucké renal adenocarcinoma: Epidemiological aspects. In: *Recent Results in Cancer Research (Special Supplement) Biology of Amphibian Tumours*. Ed M. Mizell. Berlin: Springer Verlag. Sep: 254-260.
- McKinnell, R. G. 1973. The Lucké frog kidney tumor and its herpesvirus. *American Zoologist*. 13: 97-114.
- McKinnell, R. G., Carlson, D. L. 1997. Lucké renal adenocarcinoma, an anuran neoplasm: Studies at the interface of pathology, virology and differentiation competence. *Journal of Cellular Physiology*. 173: 115-118.
- McKinnell, R. G., Cunningham, W. P. 1982. Herpesviruses in metastatic Lucké renal adenocarcinoma. *Differentiation*. 22: 41-46.
- Mikaelian, I., Ouellet, M., Pauli, B., Rodrigue, J., Harshbarger, J. C., Green, D. M. 2000. *Ichthyophonus*-like infection in wild amphibians from Québec, Canada. *Diseases of Aquatic Organisms*. 40: 195-201.
- Miller, E. A., Montali, R. J., Ramsay, E. C., Rideout, B. A. 1992. Disseminated chromoblastomycosis in a colony of ornate horned frogs (*Ceratophrys ornata*). *Journal of Zoo and Wildlife Medicine*. 23: 433-438.
- Mok W. Y., Carvalho C. M. 1984. Occurrence and experimental infection of toads (*Bufo marinus* and *B. granulosis*) with *Mycobacterium chelonae* subsp. *abscessus*. *Journal of Medical Microbiology*. 18: 327-333.

- Moody, N. J. G., Owens, L. 1994. Experimental demonstration of the pathology of a frog virus, Bohle iridovirus, for a fish species, barramundi *Lates calcarifer*. *Diseases of Aquatic Organisms*. 18: 95-102.
- Morgan, J. 1999. Progress report on the chytrid DNA project to Rick Speare and Lee Berger. Unpublished.
- Munday, B. L., Whittington, R. J., Stewart, N. J. 1998. Disease conditions and subclinical infections of the platypus (*Ornithorhynchus anatinus*). *Philosophical Transactions of the Royal Society of London B*. 353: 1093-1099.
- Mutschmann, F. 1998. Detection of *Chlamydia psittaci* using an immunofluorescence test (IFT). *Berliner und Münchener Tierärztliche Wochenschrift*. 111: 187-189.
- Mutschmann, F., Berger, L., Zwart, P., Gaedicke, C. 2000. Chytridiomycosis on amphibians – first report from Europe. *Berliner und Münchener Tierärztliche Wochenschrift*. 113: 380-383. Mycology Online. <http://www.mycology.adelaide.edu.au>. Accessed July 2000.
- Newcomer, C. E., Anver, M. R., Simmons, J. L., Wilcke, B. W., Nace, G. W. 1982. Spontaneous and experimental infections of *Xenopus laevis* with *Chlamydia psittaci*. *Laboratory Animal Science*. 32: 680-686.
- Nichols, D. K., Lamirande, E. W. 2000. Treatment of cutaneous chytridiomycosis in blue-and-yellow poison dart frogs (*Dendrobates tinctorius*). p 51. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- Nichols, D. K., Lamirande, E. W., Pessier, A. P., Longcore, J. E. 2001. Experimental transmission of cutaneous chytridiomycosis in dendrobatid frogs. *Journal of Wildlife Diseases*. 37: 1-11.
- NSW National Parks and Wildlife Service, Threatened Species Management, Information circular No. 6, Hygiene protocol for the control of disease in frogs. May 2000.
- Nyman, S. 1986. Mass mortality in larval *Rana sylvatica* attributable to the bacterium, *Aeromonas hydrophila*. *Journal of Herpetology*. 20: 196-201.
- Obendorf, D. L., Peel, B. F., Munday, B. L. 1993. *Mucor amphibiorum* infection in platypus (*Ornithorhynchus anatinus*) from Tasmania. *Journal of Wildlife Diseases*. 29: 485-487.
- O'Dwyer, T. W., Buttemer, W. A., Priddel, D. M. 2000. Inadvertent translocation of amphibians in the shipment of agricultural produce into New South Wales: its extent and conservation implications. *Pacific Conservation Biology*. 6: 40-45.
- Olson, M. E., Gard, S., Brown, M., Hampton, R., Morck, D. W. 1992. *Flavobacterium indologenes* infection in leopard frogs. *Journal of the American Veterinary Medical Association*. 201: 1766-1770.
- Osborne, W., Hunter, D., Hollis, G. 1999. Population declines and range contraction in Australian alpine frogs. Pp 145-157. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.

- O'Shea, P., Speare, R., Thomas, A. D. 1990. Salmonellas from the cane toad, *Bufo marinus*. Australian Veterinary Journal. 67: 310.
- Paperna, I., Ogara, W., Schein, M. 1997. *Goussia hyperolisi* n. sp.: a coccidian infection in reed frog *Hyperolius viridiflavus* tadpoles which expires towards metamorphosis. Diseases of Aquatic Organisms. 31: 79-88.
- Parsons, R. H., Mobin, F. 1991. Water flow across the pectoral and ventral pelvic patch in *Rana catesbiana*. Physiological Zoology. 64: 812-822.
- Pessier, A. P., Nichols, D. K., Longcore, J. E., Fuller, M. S. 1999. Cutaneous chytridiomycosis in poison dart frogs (*Dendrobates* spp.) and White's tree frogs (*Litoria caerulea*). Journal of Veterinary Diagnostic Investigation. 11: 194-199.
- Plowright, W. 1982. The effects of rinderpest and rinderpest control on wildlife in Africa. In: Animal Disease in Relation to Conservation. Pp 1-27. In: Proceedings of a Symposium at the Zoological Society of London, November 1981. Eds M.A. Edwards, U. McDonnell. Academic Press, London.
- Pounds, J. A., Crump, M. L. 1994. Amphibian declines and climate disturbance: the case of the golden toad and the harlequin frog. Conservation Biology. 8: 72-85.
- Pounds, J. A., Fogden, M. P. L., Campbell, J. H. 1999. Biological response to climate change on a tropical mountain. Nature. 398: 611-615.
- Powell, M. J. 1993. Looking at mycology with a Janus face: A glimpse of chytridiomycetes active in the environment. Mycologia. 85: 1-20.
- Ragan, M. A., Goggin, C. L., Cawthorn, R. J., Cerenius, L., Jamieson, A. V. C., Plourde, S. M., Rand, T. G., Soderhall, K., Gutell, R. R. 1996. A novel clade of protistan parasites near the animal-fungal divergence. Proceedings of the National Academy of Sciences, USA. 93: 11907-11912.
- Ramakrishnan, L., Valdivia, R. H., McKerrow, J. H., Falkow, S. 1997. *Mycobacterium marinum* causes both long-term subclinical infection and acute disease in the leopard frog (*Rana pipiens*). Infection and Immunity. 65: 767-773.
- Ramasamy, P., Rajan, P. R., Jayakumar, R., Rani, S., Brennan, G. P. 1996. *Lagenidium callinectes* (Couch, 1942) infection and its control in cultured larval Indian tiger prawn, *Penaeus monodon* Fabricius. Journal of Fish Diseases. 19: 75-82.
- Randolph, J. Iceland makes tackle disinfectant mandatory. <http://www.flyshop.com/news/09-96Iceland/> Accessed June 2001.
- Raphael, B. L. 1993. Amphibians. Veterinary Clinics of North America; Small Animal Practice. 23: 1271-1286.
- Reed, K. D., Ruth, G. R., Meyer, J. A., Shukla, S. K. 2000. *Chlamydia pneumoniae* infection in a breeding colony of African clawed frogs (*Xenopus tropicalis*). Emerging Infectious Diseases. 6: 196-199.

- Reddacliff, G. L., Hartley, W. J., Dubey, J. P., Cooper, D. W. 1993. Pathology of experimentally-induced, acute toxoplasmosis in macropods. *Australian Veterinary Journal*. 70: 4-6.
- Reichenbach-Klinke, H., Elkan, E. 1965. Amphibia. Pp 209-384. In: *The Principal Diseases of Lower Vertebrates*. Academic Press, New York.
- Retallick, R., Dwyer, L. 2000. Using translocations to learn about frog declines and disease. p 41. In: *Getting the Jump on Amphibian Disease: Conference and Workshop Compendium*. Cairns, 26-30 August 2000.
- Richards, S. J., McDonald, K. R., Alford, R. A. 1993. Declines in populations of Australia's endemic tropical rainforest frogs. *Pacific Conservation Biology*. 1: 66-77.
- Roberts, D., Conroy, S., Williams, K. 1999. Conservation status of frogs in Western Australia. Pp 177-201. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.
- Ron, S. R., Merino-Viteri, A. 2001. Amphibian declines in Ecuador: overview and first report of chytridiomycosis from South America. *Froglog*. 42: 4.
- Rush, H. G., Anver, M. R., Beneke, E. S. 1974. Systemic chromomycosis in *Rana pipiens*. *Laboratory Animal Science*. 24: 646-655.
- Sandars, D. F. 1953. A study of Diphyllbothriidae (Cestoda) from Australian hosts. *Proceedings of the Royal Society of Queensland*. 63: 65-70.
- Sastrawan, P. 1978. Studies on the taxonomy and biology of the cestode *Spirometra erinacei*. Unpub Masters thesis, Dept of Parasitology, University of Queensland, Brisbane.
- Schipper, M. A. 1978. On certain species of *Mucor* with a key to all accepted species. *Studies in Mycology*. 17: 1-52.
- Scott, G. R. 1981. Rinderpest. Pp 18-30. In: *Infectious Diseases of Wild Mammals*. Eds Davis et al. Iowa State University Press, Iowa, USA.
- Scott, M. E. 1988. The impact of infection and disease on animal populations: Implications for conservation. *Conservation Biology*. 2: 40-56.
- Scott, N. J. 1993. Postmetamorphic Death Syndrome. *Froglog*. 7: 1.
- Skerratt, L. F. 2001. Sarcoptic Mange in the Common Wombat *Vombatus ursinus* (Shaw, 1800). Unpub PhD Thesis, Department of Veterinary Science, University of Melbourne.
- Slocombe, R., McCracken, H., Booth, R., Slocombe, J. Birch, C. 1995. Infectious skin diseases of captive frogs. p 14. In: *Proceedings of the Australian Society for Veterinary Pathology*. May 1995, Melbourne.
- Smith, A. W., Anderson, M. P., Skilling, D. E., Barlough, J. E., Ensley, P. K. 1986. First isolation of calicivirus from reptiles and amphibians. *American Journal of Veterinary Research*. 47: 1718-1721.

- Sokal, R. R., Rohlf, F. J. 1997. Biometry. 3rd edn. W. H. Freeman and Company. New York, 887 pp.
- Somsiri, T., Chinabut, S., Soontornvit, S. 1997. Challenge of cultured frogs (*Rana tigerina*) with *Aeromonas* species. Pp 15-18. In: Diseases in Asian Aquaculture III. Fish Health Section. Eds T. W. Flegel, I. H. MacRae. Asian Fisheries Society, Manila.
- Sparrow, F. K. 1960. Aquatic Phycomycetes. 2nd re. ed. University of Michigan Press, Ann Arbor, Michigan.
- Sparrow, F. K. 1968. Ecology of Freshwater Fungi. Pp 41-93. In: The Fungi. Vol 3. Eds G. C. Gainsworth, A. S. Sussman. Academic Press, New York.
- Speare, R. 1990. A review of the diseases of the cane toad, *Bufo marinus*, with comments on biological control. Australian Wildlife Research. 17: 387-410.
- Speare R. 1989. Clinical examination and diagnosis of disease in anurans. Workshop on the medicine and management of amphibians. In: Proceedings of the Annual Conference of the American Association of Zoo Veterinarians, 14-19 October, Greensboro, North Carolina.
- Speare, R. 1995. Preliminary study on diseases in Australian Wet Tropics amphibians. Deaths of rainforest frogs at O' Keefe Creek, Big Tableland. Final report to Queensland Department of Environment and Heritage. Unpublished report, Queensland Department of Environment and Heritage.
- Speare, R., Berger, L., O'Shea, P., Ladds, P. W., Thomas, A. D. 1997. Pathology of mucormycosis of cane toads in Australia. Journal of Wildlife Diseases. 33: 105-113.
- Speare, R. and Core Working Group of Getting the Jump on Amphibian Disease. 2001. Nomination for listing of amphibian chytridiomycosis as a key threatening process under the Environment Protection and Biodiversity Conservation Act 1999. Pp 186-208. In: Speare, R. and Steering Committee of Getting the Jump on Amphibian Disease. Developing management strategies to control amphibian diseases: Decreasing the risks due to communicable diseases. School of Public Health and Tropical Medicine, James Cook University: Townsville.
- Speare, R., Freeland, W. J., Bolton, S. J. 1991. A possible iridovirus in erythrocytes of *Bufo marinus* in Costa Rica. Journal of Wildlife Diseases. 27: 457-462.
- Speare, R., Smith, J. R. 1992. An iridovirus-like agent isolated from the ornate burrowing frog *Limnodynastes ornatus* in northern Australia. Diseases of Aquatic Organisms. 14: 51-57.
- Speare, R., Thomas, A. D., O'Shea, P., Shipton, W. A. 1994. *Mucor amphibiorum* in the toad, *Bufo marinus* in Australia. Journal of Wildlife Diseases. 30: 399-407.
- Stiffler, D. F. 1994. The role of cutaneous acid-base-electrolyte exchange in extracellular pH regulation. Pp 120- 131. In: Amphibian Biology, Vol 1 The Integument. Ed H. Heatwole. Surrey Beatty and Sons, Chipping Norton, Australia.
- Storey, C., Lusher, M., Yates, P., Richmond, S. 1993. Evidence for *Chlamydia pneumoniae* of non-human origin. Journal of General Microbiology. 139: 2621-2626.

- Taylor, F. R., Simmonds, R. C., Loeffler, D. G. 1993. Isolation of *Flavobacterium meningosepticum* in a colony of leopard frogs (*Rana pipiens*). *Laboratory Animal Science*. 43: 105.
- Taylor, S. K., Williams, E. S., Mills, K. W. 1999a. Mortality of captive Canadian toads from *Basidiobolus ranarum* mycotic dermatitis. *Journal of Wildlife Diseases*. 35: 64-69.
- Taylor, S. K., Williams, E. S., Pier, A. C., Mills, K. W., Bock, M. D. 1999b. Mucormycotic dermatitis in captive adult Wyoming toads. *Journal of Wildlife Diseases*. 35: 70-74.
- Taylor, S. K., Williams, E. S., Thorne, E. T., Mills, K. W., Withers, D. I., Pier, A. C. 1999c. Causes of mortality of the Wyoming toad. *Journal of Wildlife Diseases*. 35: 49-58.
- Taylor, S. K., Williams, E. S., Mills, K. W. 1999d. Effects of malathion on disease susceptibility in Woodhouse's toads. *Journal of Wildlife Diseases*. 35: 536-541.
- Thumm, K., Mahony, M. 1999. Loss and degradation of red-crowned toadlet habitat in the Sydney region. Pp 99-108. In: *Declines and Disappearances of Australian Frogs*. Ed A. Campbell. Environment Australia, Canberra.
- Tinsley, R. C. 1995. Parasitic disease in amphibians: control by the regulation of worm burdens. *Parasitology*. 111 Suppl: 153-178.
- Trenerry, M. P., Laurance, W. F., McDonald, K. R. 1994. Further evidence for the precipitous decline of endemic rainforest frogs in tropical Australia. *Pacific Conservation Biology*. 1: 150-153.
- Turner, W. B. 1971. Fungi, their cultivation and their secondary metabolism. Pp 11-24. In: *Fungal Metabolites*. Academic Press. New York.
- Tyler, M. J. 1994. *Australian frogs: a natural history*. Reed Books, Chatswood.
- Tyler, M. J. 1997. *The Action Plan for Australian Frogs*. Environment Australia, Canberra.
- Vogelnest, L. 1994. Myiasis in a green tree frog (*Litoria caerulea*). *Association of Reptile and Amphibian Veterinarians*. 4: 4.
- Warburg, M. R., Lewinson, D., Rosenberg, M. 1994. Ontogenesis of amphibian epidermis. Pp 33- 63. In: *Amphibian Biology, Vol 1: The Integument*. Ed H. Heatwole, G. T. Barthalmus. Surrey Beatty and Sons, Chipping Norton, Australia.
- Warburg, M. R., Rosenberg, M., Roberts, J. R., Heatwole, H. 2000. Cutaneous glands in the Australian hylid *Litoria caerulea* (Amphibia, Hylidae). *Anatomia, Histologia, Embryologia*. 201: 341-348.
- Warner, R. E. 1968. The role of introduced diseases in the extinction of the endemic Hawaiian avifauna. *The Condor*. 70: 101-120.
- Weygoldt, P. 1989. Changes in the composition of mountain stream frog communities in the Atlantic mountains of Brazil: Frogs as indicators of environmental deterioration? *Studies in Neotropical Fauna and Environment*. 243: 249-255.

- Whittington, R. J., Jones, J. B., Hine, P. M., Hyatt, A. D. 1997. Epizootic mortality in the pilchard *Sardinops sagax neopilchardus* in Australia and New Zealand in 1995. I. Pathology and epizootiology. *Diseases of Aquatic Organisms*. 28: 1-16.
- Wilcke, B. W., Newcomer, C. E., Anver, M. R., Simmons, J. L., Nace G. W. 1983. Isolation of *Chlamydia psittaci* from naturally infected African clawed toads (*Xenopus laevis*). *Infection and Immunity*. 41: 789-794.
- Williams, S. E., Hero, J.-M. 1998. Rainforest frogs of the Australian Wet Tropics: guild classification and the ecological similarity of declining species. *Proceedings of the Royal Society of London*. B. 265: 597-602.
- Williams, R. W. 1960. Observations on the life history of *Rhabdias sphaerocephala* Goodey, 1924 from *Bufo marinus* L., in the Bermuda Islands. *Journal of Helminthology*. 34(1/2): 93-98.
- Wills, R. T. 1993. The ecological impact of *Phytophthora cinnamomi* in the Stirling Range National Park, Western Australia. *Australian Journal of Ecology*. 18: 145-159.
- Wobeser, G. A. 1994. *Investigation and Management of Disease in Wild Animals*. Plenum Press, New York.
- Wolf, K., Bullock, G. L., Dunbar, C. E., Quimby, M. C. 1968. Tadpole edema virus: a viscerotropic pathogen for anuran amphibians. *Journal of Infectious Diseases*. 118: 253-262.
- Zapata, A. G., Varas, A., Torroba, M. 1992. Seasonal variations in the immune system of lower vertebrates. *Immunology Today*. 13: 142-147.
- Zhu, X., Beveridge, I., Berger, L., Barton, D., Gasser, R. B. 2001. Genetic variation within *Spirometra erinacei* (Cestoda: Pseudophyllidea) from Australia detected by single-strand conformation polymorphism-based analysis. *Electrophoresis*. (submitted)
- Zupanovic, Z., Lopez, G., Hyatt, A. D., Green, B., Bartran, G., Parkes, H., Whittington, R. J., Speare, R. 1998. Giant toads *Bufo marinus* in Australia and Venezuela have antibodies against "ranaviruses". *Diseases of Aquatic Organisms*. 32: 1-8.

APPENDIX 1

Details of sick amphibians submitted for the disease survey. Frogs are listed in order of accession numbers, which are roughly chronological. Autolysed specimens and some specimens not fully examined by histology are excluded.

Key to prolific collectors: HBH = Harry Hines, RS = Rick Speare, KF = Kelly Field, KM = Keith McDonald, GM = Gerry Marantelli, GG = Graeme Gillespie, MJT = Michael Tyler, JC = John Clarke, PO'C = Paul O'Calloghan, MM = Michael Mahony, NS = Nick Sheppard, KT = Kathy Taylor.

Key to extra tests: IPX = ranavirus immunoperoxidase, VI = virus isolation, PCR = ranavirus PCR, BC = bacterial culture

Acc. No.	PM no.	Species	Stage Sex	Collectors no.	Location	State	Environ ment	Collector	Date	Primary diagnosis	Concurrent diseases, parasites and comments	Bd Histo	Bd scrape	Extra tests
19930290	1	<i>T. acutirostris</i>	Adult M	1 TA	Big Tableland	QLD	Rainforest	KM,RS,KF	1/10/93	No ventral skin	Oxyurids	N		
19930290	10	<i>L. rheocola</i>	Adult F	2 LR	Big Tableland	QLD	Rainforest	KM,RS,KF	2/10/93	Chytridiomycosis	Nematode larvae	Y		BC, VI
19930290	11	<i>L. nannotis</i>	Adult F	2 LN	Big Tableland	QLD	Rainforest	KM,RS,KF	2/10/93	Chytridiomycosis		Y		TEM
19930290	12	<i>T. acutirostris</i>	Adult M	7 TA	Big Tableland-JCU	QLD	Captive	KM	7/10/93	Chytridiomycosis		Y		TEM, BC, VI
19930290	13	<i>T. acutirostris</i>	Adult M	8 TA	Big Tableland-JCU	QLD	Captive	KM	28/9/93	No ventral skin				TEM, BC, VI
19930290	14	<i>T. acutirostris</i>	Adult F	9 TA	Big Tableland-JCU	QLD	Captive	KM	28/9/93	Chytridiomycosis		Y		BC, VI
19930290	15	<i>T. acutirostris</i>	Adult	10 TA	Big Tableland-JCU	QLD	Captive	KM	28/9/93	Chytridiomycosis		Y		TEM, BC, VI
19930290	16	<i>T. acutirostris</i>	Adult F	11 TA	Big Tableland-JCU	QLD	Captive	KM	28/9/93	No ventral skin				BC, VI
19930290	17	<i>T. acutirostris</i>	Adult M	12 TA	Big Tableland-JCU	QLD	Captive	KM	28/9/93	Chytridiomycosis		Y		BC, VI
19930290	18	<i>T. acutirostris</i>	Adult F	13 TA	Big Tableland-JCU	QLD	Captive	KM	28/9/93	Chytridiomycosis		Y		
19930290	19	<i>T. acutirostris</i>	Adult	14 TA	Big Tableland-JCU	QLD	Captive	KM		Chytridiomycosis		Y		BC, VI
19930290	2	<i>T. acutirostris</i>	Adult M	2 TA	Big Tableland	QLD	Rainforest	KM,RS,KF	1/10/93	No ventral skin	Oxyurids	N		
19930290	20	<i>L. rheocola</i>	Adult F	3 LR	Big Tableland	QLD	Rainforest	KM,RS,KF	12/10/93	No ventral skin				TEM
19930290	21	<i>L. nannotis</i>	Adult M	3 LN	Big Tableland	QLD	Rainforest	KM,RS,KF	11/10/93	No ventral skin				TEM
19930290	22	<i>L. rheocola</i>	Adult M	4 LR	Big Tableland	QLD	Rainforest	KM,RS,KF	12/10/93	Necrotic dorsal skin		N		TEM, BC, VI
19930290	23	<i>L. rheocola</i>	Adult M	5 LR	Big Tableland	QLD	Rainforest	KM,RS,KF	12/10/93	No ventral skin	Liver necrosis			TEM, BC, VI
19930290	24	<i>L. rheocola</i>	Adult F	6 LR	Big Tableland	QLD	Rainforest	KM,RS,KF	12/10/93	No ventral skin				TEM, BC, VI
19930290	25	<i>L. rheocola</i>	Adult M	7 LR	Big Tableland	QLD	Rainforest	KM,RS,KF	13/10/93	No ventral skin				TEM, BC, VI
19930290	26	<i>L. nannotis</i>	Adult F	4 LN	Big Tableland	QLD	Rainforest	KM,RS,KF	13/10/93	No ventral skin				
19930290	28	<i>L. nannotis</i>	Adult F	5 LN	Big Tableland	QLD	Rainforest	KM,RS,KF	12/10/93	Chytridiomycosis		Y		TEM, BC, VI
19930290	5	<i>L. nannotis</i>	Adult M	1 LN	Big Tableland	QLD	Rainforest	KM,RS,KF	2/10/93	Ulcerative dermatitis				BC, VI
19930290	6	<i>L. rheocola</i>	Adult F	1 LR	Big Tableland	QLD	Rainforest	KM,RS,KF	1/10/93	Chytridiomycosis		Y		BC, VI
19930290	7	<i>L. serrata</i>	Adult M	1 LS	Big Tableland	QLD	Rainforest	KM,RS,KF	1/10/93	Skin ulcers	Oxyurids, monogenean trematodes	N		TEM, BC, VI
19930290	8	<i>T. acutirostris</i>	Adult	6 TA	Big Tableland-JCU	QLD	Captive	KM	28/9/93	Unexamined		?		BC,
19930290	9	<i>T. acutirostris</i>	Adult F	6 TA	Big Tableland-JCU	QLD	Captive	S. Richards	28/9/93	Unexamined				BC,VI
19950203	1	<i>L. infrafronata</i>	Adult F			SA	Captive	MJT	1995	Squamous cell carcinoma		N		
19950341	1	<i>L. tasmaniensis</i>	Adult M		Paralana Springs	SA	Arid	LB & C. Williams	4/7/95	Chronic hepatitis		N		VI, blood smear
19950517	1-50	<i>B. marinus</i>	Tad		Major's Ck	QLD	Rural	RS	20/9/95	Aphanomycetosis		N		VI, mycology, SEM

Acc. No.	PM no.	Species	Stage Sex	Collectors no.	Location	State	Environment	Collector	Date	Primary diagnosis	Concurrent diseases, parasites and comments	Bd Histo	Bd scrape	Extra tests
19950628	1	<i>T. eungellensis</i>	Adult F		Eungella NP	QLD	Rainforest	KM	15/7/94	Chytridiomycosis		?		
19950628	2	<i>T. eungellensis</i>	Adult F		Eungella NP	QLD	Rainforest	KM	15/7/94	Undiagnosed		?		
19950656	1	<i>L. nannotis</i>	Adult M		Tully Gorge	QLD	Rainforest	J-M. Hero	26/10/95	Dermatitis	Trypanosomes			Blood smear
19950656	2	<i>L. caerulea</i>	Adult M		Biloela	QLD	Rural	C. Bourne	10/95	Mucormycosis		N		
19950657	1	<i>T. eungellensis</i>	Adult M		Eungella	QLD	Rainforest	R. Retallick	20/10/95	Chytridiomycosis		Y		
19951165	1	<i>L. genimaculata</i>	Adult M	24L	Big Tableland	QLD	Rainforest	KM		Undiagnosed	Oligochaetes - lymphocytic inflammation in thickened ureter wall.	N		
19951165	2	<i>T. acutirostris</i>	Adult M		Big Tableland	QLD	Rainforest	KM	19/11/93	Chytridiomycosis		Y		
19951165	3	<i>T. acutirostris</i>	Adult F		Big Tableland	QLD	Rainforest	KM	11/1/94	Chytridiomycosis	Biliary hyperplasia	Y		
19951165	4	<i>L. caerulea</i>	Adult M		Townsville	QLD	Rural	LB	21/11/95	HBC	Oligochaetes	N		
19951165	6	<i>L. lesueuri</i>	Adult		Tully	QLD	Rainforest		16/11/95	HBF	Trypanosomes	N		blood smear
19960000	2	<i>L. caerulea</i>	Adult		Mt Edwards	QLD	Forest	HBH	7/12/96	HBC	<i>Parathelandros mastigurus</i> , <i>Pleurogenoides</i> sp.			
19960144	4	<i>L. infrafnata</i>	Adult F		Adelaide	SA	Captive	MJT	1/12/95	Chronic fibrotic nephrosis	<i>Rhabdias</i> sp.	N		warthin-starry
19960214	1	<i>L. nannotis</i>	Adult F		Tully	QLD	Rainforest	J-M. Hero		Granulomatous dermatitis	<i>Rhabdias</i> sp.	N		
19960282	1	<i>L. caerulea</i>	Adult F		Captive	SA	Captive	MJT	8/3/96	Focal granulomatous dermatitis	Staphylococcus <i>Rhabdias</i> sp.	N		TEM
19960284	2	<i>L. dumerilii</i>	Adult		Adelaide Uni	SA	Captive	C. Williams	1995	Rhabdiasis	<i>Rhabdias</i> sp.			
19960284	4	<i>L. caerulea</i>	Adult F		Adelaide Uni	SA	Captive	MJT	20/2/96	Pseudo-chlamydiosis	Spargana <i>Rhabdias</i> sp.	N		TEM
19960284	5	<i>L. infrafnata</i>	Adult F		Adelaide Uni	SA	Captive	C. Williams		Rhabdiasis	<i>Rhabdias</i> sp.			
19960370	1	<i>L. spenceri</i>	Adult M		Bogong Ck	NSW	Forest	GG	1/4/96	Chytridiomycosis	Bacterial pneumonia	Y		VI
19960424	1	<i>L. ewingii</i>	Adult F		Adelaide	SA	Captive	R. Short	1996	Septicaemia				TEM, VI
19960495	1	<i>L. tasmaniensis</i>	Adult F		Snobs hut	SA		C. Williams	5/96	Ulcerative dermatitis		N		VI, blood smear
19960495	10	<i>L. tasmaniensis</i>	Adult		Campbelltown	SA	Urban	MJT	6/96	Chytridiomycosis		Y		
19960495	11	<i>L. tasmaniensis</i>	Adult		Campbelltown	SA	Urban	MJT	6/96	Chytridiomycosis		Y		
19960495	12	<i>L. tasmaniensis</i>	Adult		Campbelltown	SA	Urban	MJT	6/96	Chytridiomycosis		Y		
19960495	14	<i>L. tasmaniensis</i>	Adult		Toorak Gardens	SA	Urban	MJT	14/5/96	Monocytic nephritis	Dermatitis			
19960495	15	<i>L. dumerilii</i>	Adult F		Toorak Gardens	SA	Urban	R. Short		Chytridiomycosis		Y		
19960495	16	<i>L. caerulea</i>	Adult F		Adelaide	SA	Captive	V. Mitchell	5/96?	Mucormycosis				
19960495	17	<i>L. tasmaniensis</i>	Juv M		Toorak Gardens	SA	Urban	V. Mitchell	14/5/96	Prolapsed cloaca		N		
19960495	18	<i>L. caerulea</i>	Adult M		Adelaide Uni.	SA	Captive	MJT	22/5/96	Goiter?	Mycotic dermatitis	N		
19960495	2	<i>L. tasmaniensis</i>	Adult F		Nildottie Spring	SA	Arid	C. Williams	14/5/96	Undiagnosed skin lesion	Larval acanthocephala	N		Blood smear
19960495	5	<i>C. riparia</i>	Juv		Mt Remarkable NP	SA		C. Williams	14/5/96	Parasite in abdomen?				
19960495	6	<i>L. gracilenta</i>	Adult M		Adelaide Uni	SA	Captive	MJT	18/5/96	Ophthalmitis		N		
19960495	7	<i>L. tasmaniensis</i>	Adult M		Campbelltown	SA	Urban	MJT	6/95	Chytridiomycosis		Y		
19960495	8	<i>L. caerulea</i>	Adult		Adelaide	SA	Captive	V. Mitchell		Haemorrhagic skin nodule	Biliary hyperplasia, <i>Rhabdias</i> sp.	N		