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Information Resources on Amphibians, Fish & Reptiles Used in Biomedical Research

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Updates: [Information Resources for Reptiles, Amphibians, Fish, & Cephalopods Used in Biomedical Research, 1995](#)

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Introduction

Rodents, non-human primates, dogs, cats, and farm animals have long been the preferred animal models in biomedical research. Their behavioral repertoire and physiological responses to stimuli are more similar to human systems than are lower organisms. However, as amphibians, fish and reptiles become better understood in the field and laboratory, their advantages as alternative animal models are being revealed.

While there are about 4,000 known species of mammals, there are over 4,000 species of amphibian, 6,000 species of reptiles, and more than 20,000 species of fish. Such diversity allows for a wide range of research on specific organs, tissues, and systems that are similar in function, but often less complex than in mammals. Due to differential rates of ova maturation and numbers of gametes produced, elasmobranchs (sharks, skates, rays) are used to study fetal nutrition and toxicology as well as gametogenesis. The monkfish is an important insulin resource for researchers since it contains 20 to 40 times more insulin-producing tissue than the laboratory rat.

Reptiles and amphibians contribute to studies in genetics, embryology, developmental biology, ethology, endocrinology, and immunology. Salamanders and newts are models for limb regeneration. Fetal heart cells of the axolotl (Mexican salamander) will divide and beat *in vitro*. Frogs have played a major role in the development of communication theory. The common anole lizard is used in behavioral studies and can be induced to produce the symptoms of Parkinson's disease. Typical reptile and amphibian studies include aggression, stress physiology, reproductive cycles and dysfunction, and the effects of neurotoxins.

In contrast to mammals and birds which are endothermic (their body temperature is regulated and maintained internally), reptiles, amphibians, and fish are ectothermic with body temperature primarily regulated by ambient temperatures. Since metabolism is driven by body temperature, the rate of normal body functions in these species may be artificially increased or decreased. Thus endocrine, immunological, inflammation, cell physiology, and many other pathways can be easily manipulated.

A major concern to those who might use these species is the necessity of providing a suitable laboratory environment. Unlike mammals and birds, reptiles, amphibians and fish require very specific micro environments. For reptiles and amphibians, basking sites, water source and water temperature, relative humidity, photo period and type of lighting, ambient temperature, group density, cover, method of food preparation and presentation are all factors that influence whether or not the animals will function normally in the laboratory. Fish live in a totally aqueous environment. Type of water (fresh, salt, brackish), pH, salinity, school density, cover, dissolved oxygen, lighting, and filtration are necessary considerations that require monitoring. The animal's needs are often species-specific and failure to meet them results in stress-induced diseases, low growth rate, poor feed efficiency, cannibalism, and failure to reproduce.

Information Resources on Amphibians, Fish & Reptiles Used in Biomedical Research is an attempt to collect in a single volume much of the current information regarding the care and use of these alternative animal models. It is intended only as an introduction to these species as comprehensive coverage would fill several volumes. The authors have selected sample articles that typify recent research. Each animal group has a section of articles and books pertaining to its use in biomedical research followed by a section on its care and use. The latter section highlights not only husbandry and maintenance of particular species, but also regulations, guidelines, and veterinary aspects such as appropriate anesthesia or euthanasia. Because several citations cross phyla,

general sections are provided. A final section provides information resources with names and addresses of organizations and their publications that can provide further information. If the citation can be found at the National Agricultural Library (NAL), its call number is given. Information on how to request materials that are included in the collection of the National Agricultural Library (NAL) may be found on the Document Delivery Services Branch website at <http://www.nal.usda.gov/ddsb>. Please read carefully as there are certain restrictions on media and document types.

GENERAL

Gene transfer technology in aquaculture.

Levy, J.A.; Marins, L.F.; Sanchez, A.,
Hydrobiologia 2000, v. 420 (1), p. 91-94. ISSN: 0018-8158.

NAL call no: 410 H992

Descriptors: Biotechnology, fish culture, transgenic fish, gene transfer.

Reptiles & amphibians of Australia. 6th ed.

Cogger, Harold G., Chatswood.
N.S.W.: Reed, 2000, 808 p., ill. Ref.
ISBN: 1876334339.

NAL call no: QL663.A1C63 2000

Descriptors: Reptiles, Amphibians, Australia.

Energetics of free-ranging mammals, reptiles and birds.

Nagy, K.A.; Girard, I.A.;
Brown, T.A., *Annual Review of Nutrition*, 1999, v. 19 p. 247-277.
Annual Reviews Inc., Palo Alto, CA.
ISSN: 0199-9885.

NAL call no: QP141.A1A63

Descriptors: energy expenditure, species differences, energy requirements.

Comparison of four monoclonal antibodies reacting with gastric gland mucous cell-derived mucins of rat and frogs.

Kurihara, M.; Ishihara, K.; Ota, H.;
Katsuyama, T.; Nakano, T.; Naito, T.;
Hotta, K., 1998, *Comparative Biochemistry and Physiology-B*. v. 121B, (3), p. 315-321. ISSN: 0305-0491.

NAL call no: QP501.C6

Descriptors: antibodies, Rana, immunoprecipitation, biochemical composition.

Encyclopedia of reptiles and amphibians. 2nd

ed., Cogger, Harold G.; Zweifel,
Richard George; Kirshner, David.

McMahons Point, N.S.W.: Weldon
Owen, 1998, 240 p., ill., maps. ISBN:
0121785602.

NAL call no: QL641.E63 1998

Descriptors: reptiles, amphibians, encyclopedia.

A key to amphibians and reptiles of the continental United States and Canada.

Powell, Robert; Collins, Joseph T.;
Hooper, Errol D. Lawrence: University
Press of Kansas, c1998, 131 p., ill.,
map. ISBN: 0700609296.

NAL call no: QL652.P69 1998

Descriptors: reptiles, identification, United States, Canada.

Lymphocyte development in fish and amphibians.

Hansen, J.D.; Zapata,
A.G. *Immunological Reviews*, 1998, v. 166, p. 199-220, 1998. ISSN: 0105-2896.

NAL call no: QP89.T7

Descriptors: lymphocytes, lymphopoiesis, transcription factors, blood cells.

Use of explant cultures of peripheral nerves of adult vertebrates to study axonal regeneration in vitro.

Progress in Neurobiology. 1998, v. 54 (4), p. 459-480. ISSN: 0301-0082.

NAL call no: QP361.P7

Descriptors: vertebrates, peripheral nerves, explant cultures, regeneration.

Advances in herpetoculture.

Special publication
of the International Herpetological
Symposium, Inc.: no.1 [s.1.]: c1996,
xiii, 167 p., ill.

NAL call no: SF515.A38 1996

Descriptors: amphibian, reptile, culture.

Fish and amphibian models used in laboratory research. Kane, A.S.; Gonzales, J.F.; Reimschuessel, R., *Lab Animal*, 1996, v. 25 (6), p. 33-38. Nature Publishing Co., N.Y., N.Y. ISSN: 0093-7355.

NAL call no: QL55.A1L33

Descriptors: fishes, amphibia, animal models, laboratory animals.

Setting guidelines for the care of reptiles, amphibians and fishes. Pough, F.H., Scientist Center for Animal Welfare (SCAW), Spring 1996, v. 18 (1), p. 3-8. ISSN: 1052-7559.

NAL call no: QL55.N48

Descriptors: reptiles, amphibia, fishes, guidelines, animal care, husbandry.

Veterinary nutritional management of amphibians and reptiles. Donoghue, S. *Journal of the American Veterinary Medical Association*, June 1, 1996, v. 208 (11), p. 1816-1820. ISSN: 0003-1488.

NAL call no: 41.8 Am3

Descriptors: amphibia, reptiles, nutrition, husbandry, metabolism, disorders.

Evaluation of hypothermia for anesthesia in reptiles and amphibians. Martin, B.J., Washington, DC: Institute of Laboratory Animal Resources, National Research Council, v. 37 (4), p. 186-190. 1995. ISSN: 1084-2020.

NAL call no: QL55.A1I43

Descriptors: reptiles, amphibia, anesthesia, hypothermia, safety, animal welfare.

Self assessment color review of reptiles and amphibians. Frye, Frederick L.; Williams, David L., Iowa State University Press, 1995, 192 p. col. Ill. ISBN: 0813829909.

NAL call no: SF997.5.R4F797 1995

Descriptors: reptiles, amphibians, diseases, miscellaneous, pictorial works.

Vitellogenin induction by xenobiotic estrogens in the red-eared turtle and African clawed frog. Palmer, B.D.; Palmer, S.K., *Wildlife Development*, 1995, v. 103 (4), Supp. P. 19-25. *Environment and Health Perspectives*, NIH 95-218, v. 103 (4) Supp.

Descriptors: xenobiotics, estrogens, vitellogenin, pollution detection.

Anesthesia of reptiles and amphibians. *Proceedings of the North American Veterinary Conference*, Gainesville, FL: Eastern States Veterinary Association, 1994, p. 863.

NAL call no: SF605.N672

Descriptors: reptiles, amphibia, anesthesia.

Captive management and conservation of amphibians and reptiles. Murphy, James B.; Adler, Kraig; Collins, Joseph T. *Contributions to Herpetology*, v. 11: Society for the Study of Amphibians and Reptiles, 1994, 408 p., ill. ISBN: 0916984338.

NAL call no: SF515.C47 1994

Descriptors: captive, amphibians, reptiles, culture.

The diagnosis and treatment of commonly observed ophthalmic conditions in fishes and frogs. *Proceedings of the North American Veterinary Conference*. Gainesville, FL: Eastern States Veterinary Association, 1994, p. 782-783.

NAL call no: SF605.N672

Descriptors: fishes, frogs, diagnosis.

Medical herpetology. Grenard, Steve. Pottsville, PA: *Reptile & Amphibian Magazine*, 1994, xiii, 139 p. ISBN: 0964103206.

NAL call no: RA1242.S53G74 1994

Descriptors: reptiles, health aspects, amphibians, poisonous snakes.

Reptiles and amphibians in captivity: Breeding, longevity and inventory. Current Jan.1, 1994. Slavens, Frank L.; Slavens, Kate, Seattle, WA: Slaveware, c1994. 532 p. ill.

NAL call no: SF515.S53 1994

Descriptors: reptiles, amphibians, captivity, breeding collections.

Herpetology: An introductory biology of amphibians and reptiles. Zug, George R., San Diego: Academic Press, c1993. xv, 527 p. ill., maps. ISBN: 0127826203.

NAL call no: QL641.Z84 1993

Descriptors: Herpetology.

The reptile and amphibian keeper=s dictionary: An A to Z of herpetology. Wareham, David C. London: Blandford, 1993, 248 p., ill. ISBN: 0713723181.

NAL call no: SF515.W37 1993

Descriptors: reptile, amphibian, dictionary.

Alternatives to the use of mammals for pain research. Stevens, C.W. *Life Science*, v. 50 (13) p.901-912 (1992).

NAL call no: 442.8 L62

Descriptors: pharmacology, physiology, biochemistry, ethics, lower vertebrates.

The care of reptiles and amphibians in captivity. Rev. 3rd ed. Mattison,

Christopher. Distributed in the U.S. by Sterling Pub. Co., 1992, 317 p. 16 p. of plates; ill. ISBN: 0713723386.

NAL call no: SF459.A45M37 1992

Descriptors: reptiles, amphibians, captive.

The Care and Use of Amphibians, Reptiles, and Fish in Research. Schaeffer, D.O.; Kleinow, K.M. and Krulisch, L. (eds.), Scientists Center for Animal Welfare, Bethesda, MD; 1992, 204 pp.

NAL call no: SF406.C35 1992

Descriptors: anesthesia, euthanasia, husbandry, nutrition, behavior, disease, medicine.

Environmental Physiology of the Amphibia. Feder, M.E. and Burggren, W.A. (eds.), University of Chicago Press, Chicago, IL; 1992.

NAL call no: QL669.2.E58 1992

Descriptors: anatomy, endocrinology, neurology, immunology.

Live Animal Regulations. International Air Transport Association, Montreal-Geneva, 19th edition; 1992, 240 pp.

NAL call no: HE9788.4.A55I57

Descriptors: fish, reptiles, amphibians, container requirements, feeding requirements, and documents.

Recognition and Alleviation of Pain and Distress in Laboratory Animals. Institute of Laboratory Animal Resources, National Academy Press, Washington, DC; 1992, 137 pp.

NAL call no: SF996.5.R43

Descriptors: euthanasia, anesthesia, recommendations, animal welfare, hypothermia.

Activity-dependent plasticity in the visual systems of frogs and fish. Cline, H.T. *Trends in Neurosciences*, v.14 (3), p.104-111 (1991).

NAL call no: RC321.T74

Descriptors: model, selective synapse, neurophysiology.

Atlas of Abnormalities. A Guide for Performance of Fetax. Bantle, J.A.; Dumont, J.N.; Finch, R.A. and Linder, G. American Society for Testing and Materials, 1991.

NAL call no: RA1224.45 A85 1991

Descriptors: Developmental toxicology, animal models, atlases, teratogenicity testing.

Atlas of diagnostic radiology of exotic pets: Small mammals, birds, reptiles and amphibians. International edition. Philadelphia, PA. W.B. Saunders, c1991, 224 p. ill. ISBN: 0721634931.

NAL call no: SF757.8 A84 Ov

Descriptors: veterinary radiology atlases, diseases, diagnosis.

The care and use of amphibians, reptiles and fish in research. (Special conference report, part 1) Guttman, H.N. *SCAW Newsletter*, v. 13 (2), p.5-7 (1991).

NAL call no: QL55.N48

Descriptors: IACUC, husbandry, guidelines.

The care and use of amphibians, reptiles and fish in research. (Special conference report, part 2) Guttman, H.N. *SCAW Newsletter*. v. 13 (3), p.10-11 (1991).

NAL call no: QL55.N48

Descriptors: handling, nutrition, health.

Energy requirements for maintenance and growth of wild mammals, birds and reptiles in captivity. Kirkwood, J.K. *Journal of Nutrition*, v.121 (11), p.S29-S34 (1991).

NAL call no: 389.8 J82

Descriptors: nutrition, diet, metabolism, development.

4th International Colloquium on pathology and medicine of Reptiles and Amphibians. Gabrisch, K.; Schildger, Bernd; Zwart, P.; German Veterinary Association. *Giessen: Deutsche Veterinarmedizinische Gesellschaft*, 1991, 330 p. ill. ISBN: 3924851638.

Language: German, English.

NAL call no: SF997.5.R4I57 1991

Descriptors: reptiles, amphibians, diseases, congresses, veterinary pathology.

Learning and Memory: A Biological View. Martinez, J.L. and Kesner, R.P. (eds.), Academic Press, San Diego, CA; 1991, 563 pp.

NAL call no: QP406.L43 1991

Descriptors: brain-behavior relations, anatomy, pharmacology, lesions, electrophysiology, invertebrates, vertebrates.

National Institute on Aging, NIH, workshop on alternative animal models for research on aging. Anonymous. *Experimental Gerontology*, v. 26 (5), p. 411-439 (1991).

NAL call no: QP86.E85

Descriptors: human aging, birds, mammals, fish, reptiles, invertebrates, cost analysis.

Nutrition of aquaculture species. Lovell, R.T., 1991. *Journal of Animal Science*, v. 69 (10), p. 4193-4200, Oct. 1991. American Society of Animal Science, Champaign, IL. ISSN: 0021-8812.

NAL call no: 49 J82

Descriptors: aquaculture, nutrient requirements, fishes, energy requirements, food intake.

Ontogeny of cardiovascular and respiratory physiology in lower vertebrates.

Burggren, W.W.; Pinder, A.W., *Annual Review of Physiology*, 1991, v. 53, p. 107-135. ISSN: 0066-4278.

NAL call no: 444.8 AN7

Descriptors: lower vertebrates, cardiovascular, respiratory, physiology, ontogeny.

An overview of animal cancer registries in the United States and suggestions for improved applications. Monsein, D.L. *Compendium on Continuing Education for the Practicing Veterinarian* Princeton Jct., NJ; v.13 (7), p.1139-1146 (1991).

NAL call no: SF601.C66

Descriptors: fish, amphibians, reptiles, collection, storage, interpretation of data, data collecting, computerization.

Production of aquatic animals: Crustaceans, molluscs, amphibians, and reptiles. World animal science. C. Production system approach. Amsterdam; New York: Elsevier Science, 1991, xii, 244 p., ill. ISBN: 0444883126.

NAL call no: SH370.P76 1990

Descriptors: culture, shell fish, amphibian, reptile, aquaculture.

Recommendations for the care of amphibians and reptiles in academic institutions.

ILAR News. Institute of Laboratory Animal Resources, National Research

Council, Fall 1991, v. 33 (4), p. S1-S22. ISSN: 0018-9960.

NAL call no: QL55.A1143

Descriptors: amphibia, reptiles, laboratory rearing.

Production of Aquatic Animals: Crustaceans, Molluscs, Amphibians, and Reptiles.

Nash, C.E. (ed.), Elsevier Science Publishing Co., New York, NY; 1991, 244 pp.

NAL call no: SH370.P76 1990

Descriptors: herpetoculture, aquaculture, shell fish culture.

Anesthesia of amphibians and reptiles.

Anesthesia and Analgesia in Laboratory Animals Proceedings, 1990 Forum. American College of Laboratory Animal Medicine, Columbia, MD, May 3-6, 1990, p. 103-105.

NAL call no: SF914.A53 1990

Descriptors: amphibia, reptiles, anesthesia.

Cytogenetics of amphibians and reptiles. World Congress of Herpetology, Canterbury, England. Basel; Boston: Birkhauser, 1990, xi, 270 p. ill. ISBN: 3764323582, 0817623582.

NAL call no: QL668.5.C97

Descriptors: amphibians, reptiles, cytogenetics, Congresses.

The Experimental Animal in Biomedical Research, Vol. I: A Survey of Scientific and Ethical Issues for Investigators. Rollin, B.E. and Kesel, M.L. (eds.), CRC Press, Inc., Boca Raton, FL; 1990, 452 pp.

NAL call no: R853.A53E86 1990

Descriptors: philosophy, pain, animal models, cognition.

Model Patients: Among the inhabitants of the animal world are some that hold the cures for many human afflictions. McCourt, R. *Discover*. August 1990, pp. 36-41.

NAL call no: Q1.D57

Descriptors: fish, models cell culture, diabetes, amphibians, embryonic heart cell, biochemistry.

The relief of pain in cold-blooded vertebrates. Arena, P.C. and Richardson, K.C. *ACCART News*. Australian Council for the Care of Animals in Research and Teaching, v. 3 (1) p. 1-4 (1990).

NAL call no: SF405.5.A3

Descriptors: ectotherms, fish, amphibians, reptiles.

The choice of nonmammalian models in biomedical studies. Kleinzeller, A. In: *Nonmammalian Animal Models for Biomedical Research*. Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 1-9.

NAL call no: QL55.N66

Descriptors: osmoregulation, electrolytes, absorption, secretion, urine concentration, Krogh Principle.

Ethical and regulatory considerations in the use of cold-blooded vertebrates in biomedical research. Dresser, R. In: *Nonmammalian Animal Models for Biomedical Research*. Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 369-376.

NAL call no: QL55.N66

Descriptors: Federal law, policy, ethics, issues, care and use.

Euthanasia of amphibians and reptiles: Report of a Joint UFAW/WSPA

working party. South Mimms, Potters Bar, Herts, U.K.: Universities Federation for Animal Welfare; London, U.K.: World Society for the Protection of Animals, c1989. 35 p. ill. ISBN: 0900767464.

NAL call no: HV4731.E97

Descriptors: euthanasia, amphibians, reptiles, animal welfare.

Herpetological Husbandry for the Naturalist. Demeter, B. Herpetology Department, National Zoological Park, Washington, DC; 1989.

Descriptors: housing, care, maintenance, disease, general biology.

Humane methods of killing fish, amphibians and birds. Zwart, P.; De Vries, H.R. and Cooper, J.E. *Tijdschrift Voor Diergeneeskunde*. v.114 (10), p. 557-565 (1989).

NAL call no: 41.8 T431

Descriptors: euthanasia, Netherlands.

A molecular, evolutionary perspective of nonmammalian models in biological research. Bitensky, M.W. In: *Nonmammalian Animal Models for Biomedical Research*. Woodhead, A.D. (ed.), CRC Press, Boca Raton, FL; 1989, pp. 353-367.

NAL call no: QL55.N66

Descriptors: genes, conservative habit, parsimonious habit, extinctions, utility, metabolism, cloning, cell-adhesion, signal transduction, external awareness.

Use of ivermectin in laboratory and exotic mammals and in birds, fish, and reptiles. Soll, M.D. In: *Ivermectin and Abamectin*. Campbell, W.E. (ed.), Springer-Verlag, New York, NY; 1989, pp. 260-286.

NAL call no: SF918.I83I83

Descriptors: snakes, chelonians, copepoda, nematodes, dose, toxicity.

Viruses of Lower Vertebrates. Ahne, W. and Kurstak, E. (eds.), Springer-Verlag, New York, NY; 1989, 518 pp.

NAL call no: QR321.V57

Descriptors: virology, symposium, herpetology, ichthyology.

Field Research Guidelines. Orlans, F.B. (ed.), Scientists Center for Animal Welfare, Bethesda, MD; 1988, 23 pp.

NAL call no: HV4704.F5

Descriptors: manipulation, observation, marking.

Guidelines for reptiles and amphibians.

Pisani, G. In: *Field Research Guidelines: Impact on Animal Care and Use Committees.* Orlans, F.B. (ed.). Scientists Center for Animal Welfare, Bethesda, MD; 1988, p. 8.

NAL call no: HV4704.F5

Descriptors: manipulation, rain, field research, marking.

The care of reptiles and amphibians in captivity. Rev. ed. Poole: Blandford Press, NY: Distributed in the U.S. by Sterling Pub. Co., 1987. 317 p., 16 p. of plates, ill. ISBN: 0713718269.

NAL call no: SF459.A45M37 1987

Descriptors: amphibians, reptiles, care.

Guidelines for the use of live Amphibians and Reptiles in field research. American Society of Ichthyologists and Herpetologists. Lawrence, KS: ASIH, 1987, 14 p.

NAL call no: HV4932.G8

Descriptors: amphibians, reptiles, research, experimentation.

The UFAW Handbook on the Care and Management of Laboratory Animals. Poole, T.B. Bath Press, Avon, Great Britain, 1987, pp. 753-783.

NAL call no: QL55.U5 1987

Descriptors: reptiles, amphibia, fish, environment, anesthesia, analgesia, euthanasia, housing.

The Encyclopedia of Reptiles and Amphibians. Halliday, T.R. Facts on File, New York, NY; 1986, 143 pp.

NAL call no: QL641.H35 1986

Descriptors: models, care and use, taxonomy, physiology, natural history.

Command systems for initiating locomotion in fish and amphibians: Parallels to initiation systems in mammals. *Neurobiology of vertebrate locomotion: Proceedings of an international symposium held at Wenner-Gren Center, Stockholm, June 17-19, 1985,* edited by Sten Grillner. Basingstoke: Macmillian, 1986, p. 3-20. ill.

NAL call no: QP301.N48

Descriptors: locomotion, fish, amphibians.

Models for Biomedical Research: A New Perspective. Moroz, H.J. National Academy Press, Washington, DC; 1985, 180 pp.

NAL call no: R857.M3M9

Descriptors: *in vitro*, nonmammalian vertebrates, invertebrates, models, immunology, learning, disease and aging, development.

Ascaridoid nematodes. *Diseases of amphibians and reptiles.* Edited by Gerald L. Hoff, Frederick L. Frye and Elliott R. Jacobson. N.Y. Plenum Press. c1984, p. 219-245. ill.

NAL call no: SF997.5.A45D57

Descriptors: ascaridoid nematodes, amphibians, reptiles.

Binding characteristics of a fluorescent analogue of diphosphoglyceric acid to human, amphibian and fish hemoglobins. *Comparative Biochemistry and Physiology.* Oxford: Pergamon Press. 1984, v. 79 (2), p. 195-201. ISSN: 0123-7399.

NAL call no: QP501.C6

Descriptors: amphibians, fish, hemoglobins.

Comparative studies on the role of calcium in triggering subcellular damage in cardiac muscle. Rudge, M.F. and Duncan, C.J. *Comparative Biochemistry and Physiology. A: Comparative Physiology*, v. 77(3), p. 459-468 (1984).

NAL call no: QP1.C6

Descriptors: caffeine, toxicity, nonmammalian model.

Lung worms. *Diseases of amphibians and reptiles.* Edited by Gerald L. Hoff, Frederick L. Frye, and Elliott R. Jacobson. N.Y. Plenum Press. c1984, p. 213-217. ill.

NAL call no: SF997.5.A45D57

Descriptors: lung worms, amphibians, reptiles.

Non-hemoparasitic protozoans. *Diseases of amphibians and reptiles.* Edited by Gerald L. Hoff, Frederick L. Frye and

Elliott R. Jacobson. N.Y. Plenum Press. c1984, p. 259-384. ill.

NAL call no: SF997.5.A45D57

Descriptors: non-hemoparasitic protozoans, amphibians, reptiles.

Pentastomiasis. *Diseases of amphibians and reptiles.* Edited by Gerald L. Hoff, Frederick L. Frye and Elliott R. Jacobson. N.Y. Plenum Press. c1984, p. 205-211. ill.

NAL call no: SF997.5.A45D57

Descriptors: pentastomiasis, amphibians, reptiles.

Platyhelminths. *Diseases of amphibians and reptiles.* Edited by Gerald L. Hoff, Frederick L. Frye and Elliott R. Jacobson. N.Y. Plenum Press. c1984, p. 247-258.

NAL call no: SF997.5.A45D57

Descriptors: platyhelminths, amphibians, reptiles.

Central nervous system regulation of pituitary melanocyte-stimulating hormone: Fishes, amphibians, reptiles, mammals. *Advances in Comparative Physiology and Biochemistry.* N.Y.: Academic Press, 1982, v. 8, p. 53-71, ill. ISSN: 0065-244X.

NAL call no: 444 L952

Descriptors: fish, amphibians, reptiles, pituitary, hormones.

The comparative physiology of calcium regulation in submammal vertebrates: Fishes, amphibians, reptiles, birds. *Advances in Comparative Physiology and Biochemistry.* N.Y.: Academic Press,

1982, v. 8, p. 73-110. ISSN: 0065-244X.

NAL call no: 444 L952

Descriptors: fish, amphibians, reptiles, birds, calcium regulation.

The comparative physiology of diving in vertebrates: Amphibians, reptiles, birds, mammals. *Advances in Comparative Physiology and Biochemistry*. N.Y.: Academic Press, 1982, v. 8, p. 179-364, ill. ISSN: 0065-244X.

NAL call no: 444 L952

Descriptors: diving, amphibians, reptiles, birds, mammals.

Drug and chemical control of aquatic animal diseases. Boonyaratpalin, S., *Thai Fisheries Gazette*. 1981, v. 34 (5), p. 509-522.

NAL call no: SH307.T5W3

Descriptors: husbandry diseases, fish diseases, aquaculture, parasites.

Intra-renal renin angiotensin system in primitive vertebrates. Nishimura, H. and Bailey, J.R. *Kidney International*. v. 27(12), p. S185-S192 (1981).

NAL call no: RC902.A1K53

Descriptors: kidney, ion regulation, polypeptide.

Veterinary biology and medicine of captive amphibians and reptiles. Marcus, Leonard. Lea & Febiger, 1981, xii, 239 p., ill.

NAL call no: SF997.5.A45M37

Descriptors: biology, medicine, amphibians, reptiles.

Appendix VIII to XVI. Canadian Council on Animal Care. *Guide to the Care and Use of Experimental Animals*. Canadian Council on Animal Care, Ottawa, Ontario; 1980, vol. 1, pp. 95-103.

NAL call no: SF406.C36

Descriptors: bleeding sites, tranquilizers, anesthetics, antimicrobial, euthanasia, dosage.

Comparative studies on the immune system of fishes and amphibians: Antigen localization in the carp *Cyprinus carpio* L. *Journal of Fish Diseases*. Oxford, Blackwell Scientific, Sept. 1980, v. 3 (5), p. 399-412. ill. ISSN: 0386-2290.

NAL call no: SH171.A1J68

Descriptors: fish, amphibians, immune system, antigen.

Animals for Research: A Directory of Sources. Institute of Laboratory Animal Resources, National Research Council, National Academy of Sciences, Washington, DC; 10th edition, 1979, 141 pp.

NAL call no: SF77.S86

Descriptors: wild caught versus captive bred, suppliers, biological materials, availability, sources.

A Review of Marking Techniques for Amphibians and Reptiles. Ferner, J.W. Society for the Study of Amphibians and Reptiles, Miscellaneous Pubs., Herpetological Circular No. 9, 1979.

NAL call no: QL60.5.F4

Descriptors: identification, methodology.

Diseases of lower vertebrates and biomedical research. Cooper, J.E. *Laboratory Animals*. v. 11(2), p. 119-123 (1977).

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receptors, pollution, amphibians.

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Descriptors: frogs, retinoids, multilegged.

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Descriptors: biological membranes, brain, chemoreceptors, Rana.

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Descriptors: nerves, regeneration, neurons, Rana.

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Descriptors: immunology, toxicology, haematology.

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Descriptors: developmental genetics, *Xenopus*, reviews, laboratory animals.

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Descriptors: hypothermia, liver, preservation, hypoxia, vertebrates.

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Descriptors: transgenic animals, *Xenopus*, reviews, Adeno-associated virus.

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Descriptors: toxicity testing, epithelium, cilia, *Rana*, oxidants.

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Descriptors: contaminants, pollutants, biological indicators, toxicology.

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NAL call no: QP351.J68

Descriptors: basal ganglia, connections, *Xenopus*, *Rana*, Pleurodeles, brain.

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Descriptors: *Xenopus laevis*, frogs as laboratory animals.

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NAL call no: 391.8 F73

Descriptors: alpha tomatine, steroid alkaloids, cytotoxicity, *Rana pipiens*, cell membranes.

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NAL call no: QP351.J68

Descriptors: spinal cord, cortex somatosensory, *Rana*, *Xenopus*, brain.

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NAL call no: QL668.E265S44 1997

Descriptors: *Xenopus laevis*, frogs genetics, developmental neurobiology.

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Descriptors: *Rana pipiens*, laboratory animals, xylazine, flunixin, analgesics, pain.

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NAL call no: QH573.T73

Descriptors: GSK3 gene, *Xenopus*, reviews, gene regulation, cell fate.

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NAL call no: 472 N21

Descriptors: developmental, genetics, transgenic, frogs, *Xenopus*.

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NAL call no: 396.8 J82

Descriptors: opioid peptides, spinal cord, analgesia, amphibia, *Rana*.

The use of invitro preparations of the isolated amphibian central nervous system in neuroanatomy and electrophysiology.

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Descriptors: central nervous system, Anura, brain, amphibia.

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NAL call no: QL55.A1I43

Descriptors: amphibia, laboratory animals, husbandry, anesthesia, euthanasia, surgery.

An amphibian model for pain research.

Stevens, C.W., Nature Publishing Co., N.Y.: *Lab Animal*, Nov. 1995, v.24 (10), p. 32-36. ISSN: 0093-7355.

NAL call no: QL55.A1L33

Descriptors: amphibia, pain, animal models.

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NAL call no: 381 J8223

Descriptors: glycoalkaloids, ion transport, membrane potential, food safety.

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NAL call no: QL55.A1L33

Descriptors: amphibia, *Xenopus*, growth, metamorphosis.

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Mrozek, M.; Fischer, R.;

Trendelenburg, M.; Zillmann, U. *Laboratory Animals*. Royal Society of Medicine Press Ltd. July 1995, v. 29 (3), p. 339-344. ISSN: 0023-6772.

NAL call no: QL55.A1L3

Descriptors: *Xenopus*, amphibia, identification, implantation, microchip.

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Descriptors: *Rana*, sympathetic ganglia, membranes, reinnervation.

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Willenbring, S.; Stevens, C.W. *Life Sciences*, 1995, v. 58 (2), p. 125-133. ISSN: 0024-3205.

NAL call no: 442.8 L62

Descriptors: pain perception, stimuli, morphine, opioid receptors, *Rana*.

Amphibian sympathetic ganglia: An owner=s and operator=s manual.

Smith, P.A., *Progress in Neurobiology*, 1994, v. 43 (4-5), p. 439-510. ISSN: 0301-0082.

NAL call no: QP361.P7

Descriptors: neurons, stress, brain stem, amphibia.

Effect of crude extract of roots of *Bredemeyera floribunda* Willd, III. Effect on hormone- stimulated water transport in isolated frog skin.

Bevevino, L.H.; Sanioto, S.M.L. *Journal of Ethnopharmacology*. Elsevier Science Ireland Ltd. Jul. 22, 1994, v. 43 (3), p. 209-215. ISSN: 0378-8741.

NAL call no: RS160.J6

Descriptors: roots, plant extracts, diuretics, vasopressin, oxytocin, skin, frogs.

Effects of honey containing grayanotoxin I on frog gastrocnemius muscle. Ozesmi, C.; Aydogan, S.; Ascioğlu, M. *Veterinary and Human Toxicology*, Apr.1994, v. 36 (2), p. 117-119. ISSN: 0145-6296.

NAL call no: SF601.A47

Descriptors: poisonous honey, toxins, membrane permeability, skeletal muscle.

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NAL call no: Z7994.L3A5

Descriptors: frogs, skin, ion transport, in vitro, prostaglandins.

Learning under partial reinforcement in the toad (*Bufo arenarum*): Effects of lesions in the medial pallium. Muzio, R. N. ; Segura, E.T., *Behavioral and Neural Biology*, 1994, v. 61 (10), p. 36-46. ISSN: 0163-1047.

NAL call no: QH301.C63

Descriptors: pallium medial, learning behavior, partial reinforcement, lesions, Bufo.

Membrane receptors for corticosterone: A mechanism for rapid behavioral responses in an amphibian. Moore, F.L.; Orchinik, M. *Hormones and Behavior*, 1994, v. 28 (4), p. 512-519. ISSN: 0018-506X.

NAL call no: QP801.H7H64

Descriptors: corticosterone receptors, neurons, stress, brain stem, amphibia.

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***pipiens*.** Liu, Qin. 1994, xi, 198 leaves, ill. PhD Thesis, Univ. Kentucky. Includes bibliographical references.

Descriptors: *Rana pipiens*, eye.

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Descriptors: *Rana pipiens*, neuropeptide-Y, eye.

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NAL call no: Z7994.L3A5

Descriptors: computer simulation, ion transport, frogs.

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NAL call no: 442.8 B5238

Descriptors: calcium imaging, fura red, skeletal muscle, *Rana*.

Use of mu-conotoxin GIIIA for the study of synaptic transmission at the frog neuromuscular junction. Sosa, M.A.; Zengel, J.E. *Neuroscience Letters*, 1993, v. 157 (2), p. 235-238. ISSN: 0304-3940.

NAL call no: QP351.N3

Descriptors: mu-conotoxin GIIIA, effects, synaptic transmission, *Rana*.

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NAL call no: QH585.2.A57

Descriptors: embryology, abnormalities, chemical testing, teratogenesis.

Laboratory care and breeding of the African clawed frog. Dawson, D.; Schultz, T.W.; Shroeder, E.C. *Lab Animal*. Nature Publishing Co., Apr. 1992, v. 21 (4), p. 31-36. ISSN: 0093-7355.

NAL call no: QL55.A1L33

Descriptors: *Xenopus laevis*, animal husbandry, animal breeding.

A quantitative model of phototransduction and light adaptation in amphibian rod photoreceptors. Torre, V.; Straformini, M.; Campani, M., Genova, Italy. *Seminars in Neuroscience*, 1992, v. 4 (1), p. 5-13. Special Issue: The use of models in the neurosciences.

Descriptors: mathematical models, rods, photoreceptors, amphibia.

Amphibian Cytogenetics and Evolution. Green, D.M. and Sessions, S.K. (eds.), Academic Press, San Diego, CA; 1991, 456 pp.

NAL call no: QL668.5.A56 1991

Descriptors: phylogeny, evolution, cytotaxonomy, DNA sequences, chromosome heteromorphism, meiosis, chromosomes, sex determination, nomenclature, classification, polyploidy.

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NAL call no: QH545.A1E58

Descriptors: small-clawed frog, malformation, lethality.

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NAL call no: 500 N21P

Descriptors: receptors, embryology, proteins.

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NAL call no: 391.8 T66

Descriptors: mycotoxins, toxicity, myocardium, calcium ions.

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NAL call no: 500 N21P

Descriptors: mitosis, oscillation, cell cycle.

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NAL call no: TA164.J6

Descriptors: frog sciatic nerves, CVD variation, neurophysiology.

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NAL call no: QP572.P4C66

Descriptors: model, hypothalamic releasing hormones.

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NAL call no: QD341.A2N8

Descriptors: CAT reporter gene, promoter, small-clawed frog.

Two nonallelic insulin genes in *Xenopus laevis* are expressed differentially during neurulation in prepancreatic embryos. Shuldiner, A.R.; dePablo, F.; Moore, C.A. and Roth, J. *Proceedings of the National Academy of Sciences of the United States of America*, v. 88 (17), p. 7679-7683 (1991). ISSN: 0027-8424.

NAL call no: 500 N21P

Descriptors: physiology, embryogenesis, transcription.

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NAL call no: 410 J825

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NAL call no: 410 J825

Descriptors: rough-skinned newt, non-mammalian alternatives.

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Language: German with a summary in English.

Descriptors: amphibian, skin secretions, antibiotic activity.

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Descriptors: genetic transformation, DNA, cell culture, Gene expression.

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NAL call no: QL55.N66

Descriptors: amphibia, animal models, edocrinology.

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NAL call no: QL55.N66

Descriptors: amphibia, animal models.

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NAL call no: QP1.C6

Descriptors: axotomy, nerve growth factor.

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Descriptors: amphibian, auditory system, evolution.

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Descriptors: Bufonidae, acetylcholine, indomethacin, contractions, membrane potential, physiology, pharmacology.

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Descriptors: gene, DNA replication, nucleosomes.

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NAL call no: 470 SCI2

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Descriptors: *in vivo*, epidermis, influx, efflux, toads, axolotl.

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Descriptors: comparative studies, oxygen consumption, Rana, Bufo, bioenergetics.

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Descriptors: Parkinson's disease, toxicity, nucleic acids.

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Descriptors: antibiotics, external application, survival, laboratory frogs.

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Descriptors: *in vitro*, *in vivo*, spinal cords, neurons, NMDA receptors, antagonist, quisqualate, kainate polysynaptic, monosynaptic.

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Descriptors: frog, magnesium, striated muscle.

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Descriptors: experimentation, breeding, review.

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Descriptors: salamanders, sympathetic nervous system, development history.

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NAL call no: 470 Sci2

Descriptors: hyla, infections, trematode, deformities, mortality.

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- Descriptors: frogs, *Xenopus laevis*, flavobacterium meningosepticum, outbreaks.
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- Descriptors: *Rana*, disease resistance, beta-glucan, stress, bacterial diseases.
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- Descriptors: frogs, trematodes, infection, deformities.
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- NAL call no: SF605.N672
- Descriptors: amphibians, anesthetics, anesthesia.
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- NAL call no: SF405.5.A23
- Descriptors: *Xenopus*, laboratory rearing, housing, feeding, temperature, husbandry.
- Treating the septic amphibian.** Wright, K.M. *Proceedings of the North American Veterinary Conference*. Eastern States Veterinary Association, Jan. 10-14, 1998, v. 12, p. 824-825.
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- Descriptors: amphibians, sepsis, treatment.
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- NAL call no: SF981.P72 1997
- Descriptors: amphibians, animal husbandry, veterinary medicine.
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NAL call no: 410.9 P94

Descriptors: Xenopus, capillaria,
ivermectin, oral, injection, topical.

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NAL call no: 41.8 Au72

Descriptors: hylidae, myxidium,
protozoal infections, hepatitis, histopathology.

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NAL call no: SF405.5.A23

Descriptors: Xenopus, aquatic animals,
water supply, housing, environment.

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NAL call no: 41.8 V641

Descriptors: Xenopus, dermatitis,
nematode infection, diagnosis, treatment.

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NAL call no: SF459.F83B37 1996

Descriptors: frogs as pets, toads as pets,
Hylidae.

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Descriptors: amphibia, veterinary
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NAL call no: 41.8 Am3

Descriptors: tiletamine/zolazepam,
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NAL call no: 41.8 V641

Descriptors: Rana, iridovirus, mortality,
viral diseases.

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NAL call no: SF605.N672

Descriptors: frogs, protozoal infections.

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NAL call no: 41.8 V641

Descriptors: *Rana*, skin disease, herpesviridae, outbreaks.

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NAL call no: QL55A1L33

Descriptors: enrichment, environment, African Clawed Frog, *Xenopus laevis*.

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NAL call no: SF459.A45M38 1993

Descriptors: captive amphibians, breeding.

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NAL call no: 41.8 V641

Descriptors: *Rana*, poxviridae, mortality.

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NAL call no: 442.8 L62

Descriptors: amphibia, pharmacology, physiology, biochemistry.

Creature comforters. University of Calgary. *Future Health/Perspectives Sante*, Westmount, Quebec, Canada, Summer 1992, pp. 14-16.

Descriptors: improved housing, frogs.

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NAL call no: QH545.A1H362 v. 1

Descriptors: amphibians, chemicals, effects, manuals, pesticides.

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NAL call no: 41.8 AM3

Descriptors: *Rana pipiens*, ivermectin, cutaneous application, dosage, drug toxicity.

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NAL call no: 41.8 Am3

Descriptors: *Rana pipiens*, flavobacterium, bacterial diseases, symptoms.

Housing, handling, and nutrition of salamanders. Jaeger, R.G. *SCAW Newsletter*. Bethesda, MD: Scientist Center for Animal Welfare, Fall 1992, v. 14 (3), p. 11-14. ISSN: 1052-7559.

NAL call no: QL55.N48

Descriptors: animal housing, husbandry, nutrition, salamanders,

Nutritional support of the amphibian patient.

Wright, K. *Proceedings of the North American Veterinary Conference*. Eastern States Veterinary Association, Jan. 14-18, 1995, v. 9, p. 666.

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degradation, environment.

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Descriptors: research, neurobiology,
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NAL call no: QL55.N66

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pharmacology, toxicology.

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Descriptors: nonmammalian, models, pisces, gnathostomota, *Oryzias latipes*, carcinogenesis, neural regeneration.

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Descriptors: sight response, chemical induced, nervous system.

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Descriptors: steelhead, fish, cardiovascular disease, reproduction, growth, movement, behavior, carcinogens, tumors, parasites.

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Descriptors: immune system, cancer, cytology, neoplasm, ion transport, cellular stress response, tissue culture, teleost, epithelial, *in vitro*, toxicology, heat shock, thermo tolerance.

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NAL call no: QL618.5.G85

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NAL call no: QL55.A1L33

Descriptors: cephalaspidomorphi, chondrichthyes, osteichthyes, salmonidae, design, water quality, aquarium, construction.

Ionic regulation in fish: The influence of acclimation temperature on plasma composition and apparent set points. Burton, R.F. *Comparative Biochemistry and Physiology. A: Comparative Physiology*, v. 85 (1), p. 23-28 (1986).

NAL call no: QP1.C6

Descriptors: circulatory fluid, blood, plasma, osmotic composition, osmotic relations, temperature relationships, thermal acclimation, plasma ionic concentration, environmental factors, physical environment.

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Descriptors: nonmammalian, models, pisces, gnathostomata, *Oryzias latipes*.

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Descriptors: levels, baseline, trauma, post-operative, sampling.

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NAL call no: 391.8 T66

Descriptors: toxicology, neurology,
effects.

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toxicity). Singh, S.M. and Sivalingam,
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NAL call no: QL614.J68

Descriptors: metal stress, antagonistic,
synergistic, bioaccumulation,
mortality, cellular, pollution, liver
enzyme catalase, toxicity.

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NAL call no: QP901.C6

Descriptors: similarities,
neurotransmission, parasympathetic,
sympathetic, transmitters,
adrenoceptors, catecholamines.

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caused by abnormal environmental
factors (Ecophysiology,
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NAL call no: 41.9 L99

Descriptors: stress, pH, heavy metals,
osmotic stress, environmental stress.

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respiratory physiology, stress).**
Hughes, G.M. In: *Stress and Fish*.
Pickering, A.D. (ed.), Academic
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NAL call no: QL615.S7

Descriptors: responses, hypoxia, heavy
metals, pollution.

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NAL call no: SH174.I5 1981

Descriptors: acidification,
reproduction, recruitment failure,
populations, low pH, pH toxicity,
mortality, larvae, teleost, embryo.

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NAL call no: TD468.C6 1979

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NAL call no: TD468.C6 1979

Descriptors: toxicity, disinfectant, anti-fouling, chlorine.

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NAL call no: TD468.C6 1979

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Descriptors: water pollution, indicator species, ova.

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Descriptors: fin erosion, ulcers, environmental stress, toxicology.

Some methods of making realistic fish dummies for ethological research.

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Descriptors: Pisces, models.

The use of otoliths for age determination.

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Descriptors: aging, ear, calcareous concretion.

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Descriptors: chordates, pisces, vertebrates, laboratory animal, nonhuman vertebrates.

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Descriptors: fishes, vaccines, adjuvants, immune response, disease prevention.

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Descriptors: fish culture, biotechnology, infectious diseases, reviews.

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Descriptors: fishes, vaccines, administration, dosage, immunology.

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Descriptors: fishes, nutrition requirements, feeding, feeds.

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Descriptors: fish culture, water supply, recycling.

Use of recirculating surface water and biological filtration for aquaculture. Davis, W.B.; Thomas, D.R. *Agricultural research to protect water quality, proceedings of the conference.* Feb. 21-24, 1993, p. 460-463.

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Descriptors: fish disease, anesthetics, drug therapy, stress, bacteria, parasites, diagnosis.

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NAL call no: QL55.A1L33

Descriptors: ricefish, biology, husbandry, environmental conditions, reproduction, spawning, diet, cleaning, health, hatching, rearing, oviparous, development, toxicity.

Non-invasive ventilation monitoring in fish. Gehrke, P.C. *ACCART News*, v. 4 (4), p. 10-11 (1991).

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Descriptors: cannulation, buccal cavity, electrodes, visual monitoring, anaesthesia.

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Descriptors: anesthesia, analgesia, euthanasia, antibiotic, infection, preparations, dosages.

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Descriptors: resistance, prevention, infection.

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Descriptors: fish feeding, vitamins, vitamin deficiencies, symptoms.

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NAL call no: QP1.C6

Descriptors: fish physiology, blood, biological stress, biochemical composition, *Salmo gairdneri*, *Oncorhynchus mykiss*.

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Descriptors: animal welfare, euthanasia, pain, humane death.

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Descriptors: etiology, handling, nutrition, management, water quality, stress, natural defenses, symptoms, diagnosis, treatment, pesticides.

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NAL call no: SF77.L25

Descriptors: behavior, husbandry, diet, handling.

An introduction to fish hematology.

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NAL call no: SF601.C66

Descriptors: piscine hemogram, leukocytes, blood collection, hematologic evaluation, diagnostic tool.

Laboratory culture of jacksmelt, *Atherinopsis californiensis*, and topsmelt, *Atherinops affinis* (Pisces: Atherinidae), with a description of larvae. Middaugh, D.P.; Hemmer, M.J.; Shenker, J.M. and Takita, T. *California Fish and Game*. Environmental Research Laboratory, Gulf Breeze, FL; v. 76 (1), p. 4-13 (1990).

NAL call no: 410 C12

Descriptors: aquaculture, husbandry, water chemistry, facility design.

Phenotypic plasticity in the sailfin molly, *Poecilia latipinna* (Pisces: Poeciliidae). II. Laboratory experiment. Trexler, J.C.; Travis, J. and Trexler, M. *Evolution*, v. 44 (1), p. 157-167 (1990).

NAL call no: QH301.B543 J.13, H.1

Descriptors: genetics, variation, selection.

Relationship between ECG, EEG and SPS responses during arousal in the goldfish (*Carassius auratus*). Quick, I.A. and Laming, P.R. *Comparative Biochemistry and Physiology. A:*

Comparative Physiology, v. 95A (3), p. 459-471 (1990).

NAL call no: QP1.C6

Descriptors: restraint, environmental stimuli, bradycardia, forebrain, midbrain, hindbrain, physiology, habituation.

Clinical studies of fish blood: Importance of sample collection and measurement techniques. Heming, T.A. *American Journal of Veterinary Research*. American Veterinary Medical Association, Chicago, IL; v. 50 (1), p. 93-97 (1989).

NAL call no: 41.8 AM3A

Descriptors: effects, blood gas tensions, pH, hematology, plasma values, rainbow trout.

Current and power determinations for electrically anesthetized fish. Lolz, M.L. *The Progressive Fish-Culturist*, v. 51 (3), p. 168-169 (1989).

NAL call no: 157.5 P94

Descriptors: zero resistance, ammeter, electrical measurements, direct current, power level.

Efficacy of benzocaine as an anesthetic for salmonid fishes. Gilderhus, P.A. *North American Journal of Fisheries Management*, v. 9 (2), p. 150-153 (1989).

NAL call no: SH219.N66

Descriptors: effective concentrations, water temperature, water hardness, handling, recovery, water quality, fish size.

Heart frequency as stress indicator in fishes. [Hjertefrekvensen som indikator paa stress hos fisk]. Aarstad, I.; Knudsen, F. and Enger, P.S. *Norsk*

Fiskeoppdrett (Norwegian), v. 14 (6), p. 50-51 (1989).

Descriptors: heart rate, behavior, distress.

Multiple-tank aquarium system with recirculating water for laboratory studies of freshwater fishes. Rottman, R.W. and Capton, D.E. *The Progressive Fish-Culturist*, v. 51 (4), p. 238-243 (1989).

NAL call no: 157.5 P94

Descriptors: water level, filters, green swordtails, mosquitofish, ammonia concentration, nitrate concentration.

Plasma catecholamine concentrations in rainbow trout (*Salmo gairdneri*) at rest and after anesthesia and surgery. Gingerich, W.H. and Drottar, K.R. *General and Comparative Endocrinology*, v.73 (3), p. 390-397 (1989).

NAL call no: 444.8 G28

Descriptors: hormones, serological studies, biological stress, steroids, blood, fish physiology, *Salmo gairdneri*.

Some observations on the narcotizing ability of electric currents on the common carp *Cyprinus carpio*. Barham, W.T.; Schoonbee, H.J. and Visser, J.G.J. *The Onderstepoort Journal of Veterinary Research*. University of Zululand, KwaDlangezwa, South Africa v.56 (3), p. 215-218 (1989).

NAL call no: 41.8 ON1

Descriptors: alternating current, electronarcosis, convulsive spasms, hemorrhaging, carp, anesthesia.

The use of electronarcosis as anaesthetic in the cichlid, *Oreochromis mossambicus* (Peters). 3. The effects of changing physical and electrical

parameters on the narcotizing ability of half-wave rectified currents.

Barham, W.T.; Schoonbee, H.J. and Visser, J.G.J. *The Onderstepoort Journal of Veterinary Research*, v. 56 (1), p. 66-71 (1989).

NAL call no: 41.8 ON1

Descriptors: freshwater fish, electric current, narcosis, South Africa, physiology.

Cage culture: Handling and feeding caged fish. Masser, M.P. *SRAC Publication* v. 164, 1988, 4 pp.

NAL call no: SH151.S62

Descriptors: fish culture, food, growth, stress.

Disease symptoms in pond raised fish. Knaub, R. *Ky fish Farming*, Aquaculture Research Center, Kentucky State University, 1988, v. 1 (3), p. 7-8.

NAL call no: SH35.K4K46

Descriptors: fish diseases, symptoms, water quality, diagnosis.

Effect of stocking density on the growth and stress-response in brook charr, *Salvelinus fontinalis*. Vijayan, M.M. and Leatherland, J.F. *Aquaculture*, v.75 (1), p. 159-170 (1988).

NAL call no: SH1.A6

Descriptors: plasma protein levels, liver glycogen content, hepatosomatic index, splenosomatic index, stocking density, cortisol, feed consumption.

Fish Vaccination. Ellis, A.E. (ed.), Academic Press, San Diego, CA; 1988, 255 pp.

NAL call no: SH171.F59

Descriptors: diseases, prevention, inoculation, control.

The Manual of Fish Health. Andrews, C.; Exell, A. and Carrington, N. Tetra

Press, Morris Plains, NJ; 1988, 208 pp.

NAL call no: SH171.A52

Descriptors: fish biology, water chemistry, disease prevention, symptom recognition, treatment.

Physiologic mechanisms governing the cardiovascular compensation to gravity in bluefish. Ogilvy, C.S.; Fox, S.H. and DuBois, A.B. *The Biological Bulletin*. Marine Biological Lab, Woods Hole, General Scientific Meeting of the Marine Biological Lab. (Woods Hole, MA) August 22-24, 1988. Vol. 175, 1988, p. 308.

NAL call no: 442.8 B52

Descriptors: heart, hemodynamics, aqueous environment.

Stress in cultivated fish: Possible causes, biological reactions, preventative measures. [Le stress chez les poissons d'elevage. Origines possible, reactions, elements de prevention]. Bry, C. *Recueil de Medecine Veterinaire* (French), v. 164 (10), p. 863-869 (1988).

NAL call no: 41.8 R24

Descriptors: observation, minimization, fish culture, metabolic changes.

A method to minimize stress during fish transport. Winkler, P. *The Progressive Fish-Culturist*. Southwest Harbor, ME; v.49 (2), p. 154-155 (1987).

NAL call no: 157.5 P94

Descriptors: thermal tolerance, mosquito fish, anaerobic respiration.

Aspects of disease and parasite problems in cultured salmonids in Canada, with emphasis on the Pacific region, and

regulatory measures for their control. Margolis, L. and Evelyn, T.P.T. *Parasites and Diseases in Natural Waters and Aquaculture in Nordic Countries*. Stenmark, A. and Malmberg, G. (eds.), Symposium Stockholm, Sweden, December 2-4, 1986, Naturhistoriska Riksmuseet, 1987, pp. 4-19.

Descriptors: parasitology, symptoms, treatments, etiology.

Fish. In: *The UFAW Handbook on the Care and Management of Laboratory Animals*. Poole, T.B. Bath Press, Avon, Great Britain, 1987, pp. 784-847.

NAL call no: QL55.U5 1987

Descriptors: fish, reptiles, amphibia, environment.

Fish and natural protection. [Fisch und Naturechutz]. Reichenbach-Klinke, H.H. *Tieraerztliche Praxis*. Muenchen University, Germany. v.15 (1), p. 99-106 (1987).

Descriptors: toxins, coloration, morphology, behavior.

Fish blood osmolality, gill histology and oocyte atresia as early warning acid stress indicators. McCormick, J.H.; Stokes, G.N.; Jensen, K.M. and Leino, R.L. *Ecophysiology and Acid Stress in Aquatic Organisms*. Witters, H. and Vanderborght, O. (eds.), International Symposium, organized by the Belgian Royal Zoological Society, Antwerpen, Belgium, January 13-16, 1987, pp. 309-319.

Descriptors: pH, osmosis, prevention, egg damage.

Recirculation anaesthesia for laboratory fish. Brown, L.A. *Laboratory Animals*, v. 21 (3), p. 210-215 (1987).

NAL call no: QL55.A1L3

Descriptors: tricaine methanesulphonate, surgery, water quality, ammonia, catfish, equipment design.

Using fish as models in biomedical research. May, E.B.; Bennett, R.D.; Lipsky, M.M. and Reimschuessel, R. *Lab Animal*, v.16 (4), p. 23-28 (1987).

NAL call no: QL55.A1L33

Descriptors: cephalaspidomorphi, chondrichthyes, osteichthyes, salmonidae, cycle, design, filtration, water quality, construction.

Anesthesia for fish. Sedgwick, C.J. *The Veterinary Clinic of North America: Food Animal Practice*. W.B. Saunders Co., Philadelphia, PA; v.2 (3), p. 737-742 (1986).

NAL call no: SF601.V535

Descriptors: handling, examination, diagnostic sampling, transport, sedation, techniques, biology.

Disease resistance of fish (also include immune system). [Sjukdomsresistens hos fisk]. Lillehaug, A. *Norsk Veterinaertidsskrift* (Norwegian), v.98 (11), p. 855-861 (1986).

NAL call no: 41.8 N81

Descriptors: immunity, disease prevention, disease control.

Immediate influence of tank scrubbing on some blood parameters of cultured European sea bass, *Dicentrarchus labrax* L.: Effect of stress. [Influence immediate du brossage des bacs sur certains parametres sanguins de loup d'elevage, *Dicentrarchus labrax* L.: Effet de stress]. Hadj Kacem, N.; Aldrin, J.F. and Romestand, B. *Aquaculture* (French), v.59 (1), p. 53-59 (1986).

NAL call no: SH1.A6

Descriptors: distress, tank cleaning, blood chemistry.

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NAL call no: SH167.C3C6

Descriptors: 3-4/4-methoxyphenyl/propyl acetate, MS-222 comparison, handling, stress, adrenalin, noradrenalin, blood glucose, transaminases.

Evolution of the renin-angiotensin system and its role in control of cardiovascular function in fishes. Nishimura, H. *Evolutionary Biology of Primitive Fishes*. Foreman, R.E.; Gorbman, A.; Dodd, J.M. and Olsson, R. (eds.), Plenum Press, New York, NY; 1985, pp. 275-293.

NAL call no: QH301.N32 v.103 1985

Descriptors: protein enzyme, juxtaglomerular cells, renal lymph, venom substrate, L-globulin, octapeptide angiotensin, hydromineral homeostasis, teleost, tetrapods.

Hagfish insulin: Evolution of insulin. Emdin, S.O.; Steiner, D.F.; Chan, S.J. and Falkmer, S. *Evolutionary Biology of Primitive Fishes*. Foreman, R.E.; Gorbman, A.; Dodd, J.M. and Olsson, R. (eds.), Plenum Press, New York, NY; 1985, pp. 363-378.

NAL call no: QH301.N32 v.103 1985

Descriptors: regulation, carbohydrate transport, amino acid transport, biosynthesis, lipids, nutrition, receptors-effectors, anabolic needs.

Niacin requirement for optimum growth, feed conversion and protection of rainbow trout, *Salmo gairdneri* from ultraviolet-B irradiation. Poston, H.A. and Wolfe, M.J. *Journal of Fish Diseases*, v. 8 (5), p. 451-460 (1985).

NAL call no: SH171.A1J68

Descriptors: niacinamide, dermatopathy, UV, depigment, fin erosion, desquamation, sunburn.

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Descriptors: disease prevention, fish culture, physiology.

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NAL call no: QH302.N32 v.103 1985

Descriptors: ichthyology, non-teleostean fishes, tetrapods, hagfishes, lampreys, agnathans, teleosts, composition, lymph, water balance.

Adaptation to thermal stress in the freshwater eurythermal teleost *Sarotherodon mossambicus*: Lactate dehydrogenase activity (Fish). Radhakrishnaiah, K. *Proceedings of the Indian Academy of Sciences*

(*Animal Sciences*), v. 93 (2), p. 115-119 (1984).

NAL call no: QL1.I48

Descriptors: LDH activity, osmoregulation, enzyme activity, size, dependence, metabolism.

Anaesthetic and Sedative Techniques for Fish.

Ross, L.G. and Ross, B. University of Stirling, Institute of Aquaculture, Scotland, 1984, 35 pp.

NAL call no: SH156.9.R6 1984

Descriptors: physiology, anesthesia, welfare, pain, stress, procedures.

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NAL call no: SH135.A8

Descriptors: fish culture, data base, bibliographies.

Disease in marine aquaculture. Sinderman, C.J. *Helgoländer Meeresuntersuchungen*. Biologische Anstalt Helgoland, Hamburg, Germany, v.37, p. 505-532 (1984).

NAL call no: QH91.A1H4

Descriptors: pathogen control, prevention, fish culture, pH, housing, stress.

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NAL call no: SF406.C36

Descriptors: housing, feeding, anesthesia, analgesia, euthanasia, disease.

Nutritional requirements of experimental

fish. Dupress, H.K. (ed.), *NCI Monographs*. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, Bethesda, MD; 1984.

NAL call no: R261.A1N37

Descriptors: analysis, nutritional breakdown, captive fish.

Principal bacterial diseases of cultured

marine fish. Fryer, J.L. and Rohovec, J.S. *Helgoländer Meeresuntersuchungen*. Biologische Helgoland, Hamburg, Germany, v. 37, p. 533-545 (1984).

NAL call no: QH91.A1H4

Descriptors: gram negative bacteria, gram positive bacteria, anaerobic bacteria, etiological agents, pathogen control.

Physiological responses of experimental fish

to stressful conditions. Gratzek, J.B. and Reinert, R. *NCI Monographs*. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, Bethesda, MD; v. 65, 1984.

NAL call no: RC261.A1N37

Descriptors: glucocorticoids, adrenal, husbandry, housing.

Tables of sample size requirements for detection of fish infected by pathogens: Three confidence levels for different infection prevalence and various population sizes. Simon, R.C. and Schill, W.B. *Journal of Fish Diseases*, v.7 (6), p. 515-520 (1984).

NAL call no: SH171.A1J68

Descriptors: carriers, sublethal infections, detection methods.

The adaptation to salinity: Response of fish gill mitochondria to salinity stress (*Tilapia mossambica*, *Sarotherodon mossambicus*). Suresh, N. and Jayaraman, J. *Journal of Bioenergetics and Biomembranes*, v.15 (6), p. 363-377 (1983).

NAL call no: QH511.A1J68

Descriptors: freshwater fish, response, ion-osmotic shock, phosphorylate, transhydrogenase, salinity adaptation, calcium uptake.

Etomidate as an anesthetic for fish: Its toxicity and efficacy (*Ictalurus punctatus*, *Notemigonus crysoleucas*, *Lepomis macrochirus*). Limsuwan, C.; Grizzle, J.M. and Plumb, J.A. *Transactions of the American Fisheries Society*, v.112 (4), p. 544-550 (1983).

NAL call no: 414.9 AM3

Descriptors: channel catfish, golden skinners, LC50, induction, recovery, water hardness, pH, opercular movement, survival, exposure time.

Experimental anesthesia of three species of freshwater fish with etomidate (*Notemigonus crysoleucas*, *Morone saxatilis*, *Ictalurus punctatus*). Plumb, J.A.; Schwedler, T.E. and Limsuwan, C. *The Progressive Fish Culturist*. United States Fish and Wildlife Service, v. 45 (1), p. 30-33 (1983).

NAL call no: 157.5 P94

Descriptors: ethyl-1-methylbenzyl-imidazole-5-carboxylate, non-barbiturate, hypnotic agent, golden skins, channel catfish, sedation.

The Influence of Stress Factors on the Physiological Status of Cultured Fish. [Die Einwirkung von Stressoren auf

den Physiologischen Zustand von Nutzfischen]. Blum, V. and Borchard, B. West Germany, 1983, 73 pp.

NAL call no: SH171.B5

Descriptors: physiology, pH, housing, nutrition, aquaculture.

Possibility of applying anesthesia by carbon dioxide in the transportation of live fish. Takeda, T. and Itazawa, Y. *Bulletin of the Japanese Society of Scientific Fisheries*, v. 49 (5), p. 725-731 (1983).

NAL call no: 414.9 J274

Descriptors: sedation, transport, handling, sodium bicarbonate, sulphuric acid, suitability, safety, labor intensive, effectiveness.

The role of the pituitary-interrenal axis during osmotic stress in the teleost fish (*Sarotherodon mossambicus*, *Cyprinus carpio*). Gupta, O.P. and Hanke, W. *Zoologische Jahrbucher: Abteilung fur Allgemeine Zoologie und Physiologie der Tiere*, v. 87 (1), p. 79-91 (1983).

NAL call no: 410 Z751Z

Descriptors: plasma cortisol, urea stress, mannitol stress, response, intoxication, pituitary-interrenal axis, hypophysectomized, acclimation.

Sustained anesthesia with 2-phenoxyethanol in yearling rainbow trout (fish, *Salmo gairdneri*). Takashima, F.; Zhaoming, W.; Kasai, H. and Asakawa, O. *Journal of the Tokyo University of Fisheries*, v. 69 (2), p. 737-742 (1983).

NAL call no: 414.9 T57

Descriptors: long-term, appearance, behavior, cortisol levels, agitation, stress, transport.

Etomidate: Effective dosages for a new fish anesthetic. Amend, D.F.; Goven, B.A. and Elliot, D.G. *Transactions of the American Fisheries Society*, v.111 (3), p. 337-341 (1982).

NAL call no: 414.9 AM3

Descriptors: dose response, immobilizing fish, paraffin embedding techniques, hematoxylin, eosin, acid-shiff stains, black tetra.

Hepatic microsomes from freshwater fish, II. Reduction of benzo(a)pyrene metabolism by the fish anesthetics quinaldine sulfate and tricaine (Brook trout, {*Salvelinus fontinalis*}). Fabacher, D.L. *Comparative Biochemistry and Physiology. C: Comparative Pharmacology*, v. 73 (2), p. 285-288 (1982).

NAL call no: QP901.C6

Descriptors: brook trout, decapitation, in vitro, spectral analysis.

Levels of CO₂ (carbon dioxide) in arterial blood of carp under carbon dioxide anesthesia (Transportation of live fish). Mitsuda, H.; Ueno, S.; Mizuno, H.; Ueda, T.; Fujikawa, H.; Nohara, T. and Fukada, C. *Journal of Nutritional Science and Vitaminology*, v. 28 (1), p. 35-39 (1982).

NAL call no: 389.8 J825

Descriptors: transport, PaO₂, PaCO₂, pH, electrocardiogram, opercular rate, *Cyprinus carpio*.

Physiological effects of acid stress on fish.

Leivestad, H. In: *Acid Rain/Fisheries: Proceedings of an International Symposium on Acidic Precipitation and Fishery Impacts in Northeastern North America, Cornell University, Ithaca, NY; August 2-5, 1981*. Johnson, R.E.

(ed.), American Fisheries Society, Bethesda, MD; 1982, pp. 157-164.

NAL call no: SH174.I5

Descriptors: necrotic gill damage, mortality, oogenesis, pH toxicity.

Respiration of carp under anesthesia induced by mixed bubbling of carbon dioxide and oxygen (*Cyprinus carpio*, means for live transport of fish). Itazawa, Y. and Takeda, T. *Bulletin - Japanese Society of Scientific Fisheries*, v. 48 (4), p. 489-493 (1982).

NAL call no: 414.9 J274

Descriptors: transportation, anesthetic, reduced stress, CO₂.

Use and efficacy of methomidate as an anesthetic on ten Mediterranean fish species. [Utilisation et efficacite du metomidate comme anesthésiant sur dix especes de poissons mediterraneens]. Escoubet, P. *Bulletin de la Societe des Sciences Veterinaires et de Medicine Comparee de Lyon*, v. 84 (6), p. 357-362 (1982).

NAL call no: 41.9 L99

Descriptors: anesthesia, effects, transport, handling, care.

Use of adenylate concentrations and adenylate energy charge as indicators of hypoxic stress in estuarine fish. Vetter, R.D. and Hodson, R.E. *Canadian Journal of Fisheries and Aquatic Sciences [Journal Canadien des Sciences Halieutiques et Aquatiques]*, v. 39 (4), p. 535-541 (1982).

NAL call no: 442.9 C16J

Descriptors: ATP concentrations, stoichiometric, stress assessment.

Adrenergic responses to stress in fish (mortality, osmoregulatory disturbances). Mazeaud, M.M. and Mazeaud, F. *Stress and Fish*. Academic Press, London, England, 1981, pp. 49-75.

NAL call no: QL615.S7

Descriptors: catecholamines, stress actions, physiologic parameters.

Aquarium Systems. Hawkins, A.D. (ed.), Academic Press, New York, NY; 1981, 452 pp.

NAL call no: SF457.A67

Descriptors: laboratory animals, fish culture, shellfish culture.

Aspects of water quality producing stress in intensive fish culture (physiological disturbances). Smart, G.R. *Stress and Fish*. Academic Press, London, England, 1981, pp. 277-293.

NAL call no: QL615.S7

Descriptors: dissolved oxygen, rainbow trout, salmonid farming, nephrocalcinosis.

Effects of stress on osmotic and ionic regulation in fish. Eddy, F.B. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 77-102.

NAL call no: QL615.S7

Descriptors: regulation, endocrinology, effects, pollution, temperature, anaesthesia, handling.

Introduction: The concept of biological stress (fish). Pickering, A.D. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic

Press, London, England, 1981, pp. 1-9.

NAL call no: QL615.S7

Descriptors: terminology, stress responses, relevance.

Non-antibody molecules and the defense mechanisms of fish (metabolism, stress). Fletcher, T.C. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 171-183.

NAL call no: QL615.S7

Descriptors: skin, mucous, blood, fever.

Physiological stress in captive fish. Wardle, C.S. In: *Aquarium Systems*. Hawkins, A.D. (ed.), Academic Press, New York, NY; 1981, pp. 403-414.

NAL call no: SF457.A67

Descriptors: osmoregulation, physiology, hypoxia, pH, housing, handling.

The pituitary-interrenal axis as an indicator of stress in fish. Donaldson, E.M. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 11-47.

NAL call no: QL615.S7

Descriptors: hypothalamus, pituitary, interrenal, hypothalamic-pituitary-interrenalaxis, HPI axis, stress evaluation response.

The Seawater Manual: Fundamentals of Water Chemistry for Marine Aquarists. Mowka, E.J. Aquarium Systems, Inc., Mentor, OH; 1981, 43 pp.

NAL call no: SF457.5.M68 1981

Descriptors: water quality, salinity, health, marine fishes.

Some aspects of thermal stress on freshwater teleosts. Elliott, J.M. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 209-245.

NAL call no: QL615.S7

Descriptors: thermal limits, tolerance, resistance, body temperature, thermoregulation.

Stress and compensation in teleostean fishes: Responses to social and physical factors. Schreck, C.B. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 295-321.

NAL call no: QL615.S7

Descriptors: components, stress conceptualization, stress control.

Stress and the modulation of defence mechanisms in fish (physiological systems). Ellis, A.E. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 147-169.

NAL call no: QL615.S7

Descriptors: hormones, immunosuppressive factors, macrophages, temperature, antibiotics.

Stress, environment and reproduction in teleost fish. Billard, R.; Bry, C. and Gillet, C. In: *Stress and Fish*. Pickering, A.D. (ed.), Academic Press, London, England, 1981, pp. 185-208.

NAL call no: QL615.S7

Descriptors: photoperiod, water quality, synergism, mechanisms.

Vivisection, anaesthetics and minor surgery.

Tytler, P. and Hawkins, A.D. In: *Aquarium Systems*. Hawkins, A.D. (ed.), University Stirling, Glasgow, UK; 1981, pp. 247-278.

NAL call no: SF457.A67

Descriptors: surgical technique, humane care and use, animal rights.

Anesthetic and sedative drug dosage - fish and crustaceans. In: *Guide to the Care and Use of Experimental Animals*. Canadian Council on Animal Care, Ottawa, Ontario, 1980, v. 1, pp. 100.

NAL call no: SF406.C36

Descriptors: housing, stress, handling, analgesia, guidelines.

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NAL call no: TRANSL 26797

Descriptors: selection, methods, guidelines, suitability, technique.

Antimicrobial drug dosage - reptile, fish. In: *Guide to the Care and Use of Experimental Animals*. Canadian Council on Animal Care, Ottawa, Ontario, 1980, v. 1, pp. 102.

NAL call no: SF406.C36

Descriptors: dosages, antifungal, antibacterial, recommendations, guidelines.

The aquatic environment in health and disease. Leibovitz, L. *Journal of the American Veterinary Medical Association*. The Association, Ithaca, NY; v. 176 (9), p. 824-826 (1980).

NAL call no: 41.8 AM3

Descriptors: maintenance, water quality, diagnosis, temperature, hemostasis, growth.

Fish reproduction and stress. Gerking, S.D. *Environmental Physiology of Fishes*, v. 35, p. 569-587 (1980).

NAL call no: QH301.N32

Descriptors: spawning periodicity, fathead minnow, thermal limit, oogenesis.

Carbonic acid anesthesia for aquatic organisms. Post, G. *The Progressive Fish-Culturist*, v. 41 (3), p. 142-144 (1979).

NAL call no: 157.5 P94

Descriptors: sedation, quantity calculation, method of induction, benefits.

Culture of algae for larval fish and shellfish rearing. Helm, M.M.; Laing, I.; Jones, E.; Baynes, S.M.; Emerson, L. and Scott, A.P. *Fisheries Research Technical Report No. 53*. Fisheries and Food Ministry of Agriculture Directorate of Fisheries Research (ed.), Lowestoft, Suffolk, Great Britain; 1979.

NAL call no: SH255.F47

Descriptors: fishfood, fish culture, nutrition, larval development.

Sedation of warm-water fish species in aquaculture research. Ross, L.G. and Geddes, J.A. *Aquaculture*, v. 16, p. 183-186 (1979).

NAL call no: SH1.A6

Descriptors: anesthesia, benzocaine, dosages, temperature, recommendations, recovery.

The leukocytes of fish: A review. Ellis, A.E. *Journal of Fish Biology*, v. 11, p. 453-491 (1977).

NAL call no: QL614.J68

Descriptors: thrombocytes, lymphocytes, immunity, monocytes, macrophages, morphology, mastcells, eosinophils.

Rapid start-up of a biological filter in a closed aquaculture system. Carmignani, G.M. and Bennett, J.P. *Aquaculture*, v.11, p. 85-88 (1977).

NAL call no: SH1.A6

Descriptors: nitrifying bacteria, activation time, equilibrium.

The immune response in fish: A review. Corbel, M.J. *Journal of Fish Biology*, v. 7, p. 539-563 (1975).

NAL call no: QL614.J68

Descriptors: cell-mediated immunity, humoral antibody system.

Fishes: Guidelines for the Breeding, Care, and Management of Laboratory Animals: A Report. Institute of Laboratory Animal Resources (U.S.), National Academy of Sciences, Washington, DC; 1974, 85 pp.

NAL call no: SF407.F5N37

Descriptors: lab animal, standards, use, handling, growth, maintenance.

Routine hematological methods for use with fish blood. Blaxhall, P.C. and Daisley, K.W. *Journal of Fish Biology*, v. 5, p. 771-781 (1973).

NAL call no: QL614.J68

Descriptors: normal values, blood sampling.

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NAL call no: QL614.J68

Descriptors: hematology, normal values, blood sampling.

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NAL call no: 100 D37S

Descriptors: design, growth, development, disease, flexibility.

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Descriptors: normal values.

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Eisler, R. *Chesapeake Science*. Maryland Department of Research and Education, Chesapeake Biological Laboratory, Solomon, MD; v. 6 (2) p. 119-120 (1965).

NAL call no: 409.6 C42

Descriptors: mean length, erythrocyte number, hemoglobin content

A technique for age determination in the skate, *Raja eglanteria*. Daiber, F.C. *Copeia*, 1960(3), p. 258-260 (1960).

Descriptors: aging, sexing, physical observations.

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NAL call no: SF605.N672

Descriptors: reptiles, drug therapy, antibiotics.

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NAL call no: SF605.N672

Descriptors: reptiles, radiography, ultrasonography.

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NAL call no: SF605.N672

Descriptors: reptiles, postmortem examinations.

The lizard. Grenard, Steve. N.Y., N.Y.: Howell Book House, c1998, 126 p., ill. ISBN: 0876054297.

NAL call no: SF459.L5.G74 1998

Descriptors: lizards as pets.

Radiographic imaging of reptiles. Carpenter, J.W. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association*, Jan. 10-14, 1998, v. 12, p. 873-875.

NAL call no: SF605.N672

Descriptors: radiography, reptiles.

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NAL call no: SF981.P72 1997

Descriptors: snakes, animal husbandry, animal health.

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NAL call no: SF981.P72 1997

Descriptors: snakes, blood cells, hematology.

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Descriptors: reptiles, protozoa, infections.

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NAL call no: SF981.P72 1997

Descriptors: reptiles, trematoda, eucestoda, helminthosis.

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NAL call no: SF981.P72 1997

Descriptors: reptiles, parasites.

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NAL call no: SF981.P72 1997

Descriptors: reptiles, feces, parasites.

Basic principles of reptilian therapeutics. Klingenberg, R.J. *Proceedings of the North American Veterinary Conference.*: Eastern States Veterinary Association, Jan. 13-17, 1996, v. 10, p. 827-829.

NAL call no: SF605.N672

Descriptors: reptiles, drug therapy.

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NAL call no: SF605.N672

Descriptors: computed tomography.

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NAL call no: SF459.S5.F58 1996

Descriptors: snakes as pets.

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*Proceedings of the North American
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NAL call no: SF605.N672

Descriptors: reptiles, veterinary
services.

Ultrasound imaging in reptiles. Schumacher,
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NAL call no: SF605.N672

Descriptors: ultrasonography.

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Klingenberg, Roger J. *The
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NAL call no: SF459.T8D39 1995

Descriptors: box turtle, manuals,
handbooks.

Injection sites in reptiles. Stahl, S.J.
*Proceeding of the North American
Veterinary Conference: Eastern States
Veterinary Association, Jan. 14-18,
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NAL call no: SF605.N672

Descriptors: reptiles, injection sites.

Red tailed boas and other boa constrictors.
Drewnowski, Glen. Neptune City,
N.J.: T.F.H. Publications, c1995, 64
p., ill., maps. ISBN: 079380275X.

NAL call no: SF459.S5D74 1995

Descriptors: boa constrictor, snakes as
pets.

Reptilian hematology. Boyer, T.H.
*Proceedings of the North American
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Veterinary Association, Jan. 14-18,
1995, v. 9, p. 640-641.*

NAL call no: SF605.N672

Descriptors: reptiles, blood sampling,
blood picture.

Anesthesia of reptiles and amphibians.
Cooper, J.E. *Proceedings of the North
American Veterinary Conference:
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Jan. 15-20, 1994, p. 863.*

NAL call no: SF605.N672

Descriptors: reptiles, amphibia,
anesthesia.

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N.J.: T.F.H. Publications, c 1994, 64
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NAL call no: SF459.S5C63 1994

Descriptors: Burmese pythons, snakes
as pets.

Cranial nerve examination in reptiles.
Bennett, R.A. *Proceedings of the
North American Veterinary
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863.*

NAL call no: SF605.N672

Descriptors: reptiles, neurology.

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Aaron M.; Henle, Klaus. Berlin:
N.Y., N.Y.: W. de Gruyter, 1994, v.:
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NAL call no: 411 D48 Tielbd. 109

Descriptors: Geckos, classification.

Injection sites in reptiles. Barten, S.L.
*Proceedings of the North American
Veterinary Conference: Eastern States
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NAL call no: SF605.N672

Descriptors: reptiles, injection,
veterinary medicine.

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NAL call no: SF515.5.L58D416 1994

Descriptors: captive lizards, manuals,
handbooks.

**Milk snakes: Every species and sub-species in
brilliant color.** Mara, W.P. Neptune
city, N.J.: T.F.H. Publications, c1994,
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NAL call no: SF459.S5M36 1994

Descriptors: Lampropeltis, snakes as
pets.

**Office protocol and physical examination of
reptiles.** Barten, S.L. *Proceedings of
the North American Veterinary
Conference: Eastern States Veterinary
Association, Jan. 15-20, 1994, p. 853-
855.*

NAL call no: SF605.N672

Descriptors: reptile, clinical
examination.

Reptilian hematology: The basics. Lane, R.A.
*Proceedings of the North American
Veterinary Conference: Eastern States
Veterinary Association, Jan. 15-20,
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NAL call no: SF605.N672

Descriptors: reptiles, hematology.

Reptile metabolic diseases. Cooper, J.D.
*Proceedings of the North American
Veterinary Conference: Eastern States
Veterinary Association, Jan. 15-20,
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NAL call no: SF605.N672

Descriptors: reptiles, metabolic
disorders.

Reptile orthopedics. Bennett, R.A.
*Proceedings of the North American
Veterinary Conference: Eastern States
Veterinary Association, Jan. 15-20,
1994, p. 860-861.*

NAL call no: SF605.N672

Descriptors: reptiles, orthopedics,
fracture fixation.

Reptile soft tissue surgery. Bennett, R.A.
*Proceedings of the North American
Veterinary Conference: Eastern States
Veterinary Association, Jan. 15-20,
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NAL call no: SF605.N672

Descriptors: reptiles, surgical
operations.

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echocardiology in herptological
medicine.** Frye, F.L. *Proceedings of
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Conference: Eastern States Veterinary
Association, Jan. 15-20, 1994, p. 879-
882.*

NAL call no: SF605.N672

Descriptors: reptiles, heart sounds,
ultrasonics.

Viral diseases of reptiles. Cooper, J.E.
*Proceedings of the North American
Veterinary Conference: Eastern States
Veterinary Association, Jan. 15-20,
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NAL call no: SF605.N672

Descriptors: reptiles, viral diseases.

Reptiles. *Reptiles magazine* (previous title *Vivarium*). Irvine, CA: Fancy Publications, v. ill., v. 1 (2), Dec. 1993. ISSN: 1068-1965.

NAL call no: SF515.R47

Descriptors: reptiles, periodicals.

Alligator aquaculture. Louisiana State University, Agricultural Center: Louisiana Cooperative Extension Service, c1988, 1 video cassette, 18 min. 35 sec. sd. col.

NAL call no: Videocassette no. 571

Descriptors: alligators, aquaculture.

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Adaptations of reptilian paramyxovirus to mammalian cells (vero cells). Mayr, A.; Franke, J.; Ahne, W. *J. Vet. Med. Ser. B.* Berlin: Blackwell Wissenschafts Verlag, Mar. 2000, v. 47 (2), p. 95-98. ISSN: 0931-1793.

NAL call no: 41.8 Z52

Descriptors: cell lines, paramyxoviridae, adaptation, viral replication, host range.

Atrioventricular valvular insufficiency and congestive heart failure in a carpet python.

Rishniw, M.; Carmel, B.P. *Australian Veterinary Journal.* Brunswick, Vic.: Australian Veterinary Association, Sept. 1999, v. 77 (9), p. 580-583. ISSN: 0005-0423.

NAL call no: 41.8 Au72

Descriptors: snakes, heart disease, heart valves, congenital abnormalities.

Establishment and characterization of 13 cell lines from a green turtle (*Chelonia mydas*) with fibropapillomas. Lu, Y.; Nerurkar, V.R.; Aguirre, A.A.; Work, T.M.; Balazs, G.H.; Yangihara, R. *In-Vitro Cellular and Developmental Biology.* Jul./Aug. 1999, v. 35 (7), p. 389-393. ISSN: 1071-2690.

NAL call no: QH585.A1I58

Descriptors: cell line, papilloma, tumors, body organs.

Metalloproteins and their contribution to haemolytic effects of snake venom. Imrecke, Claudia. Hannover: [s.n.], 1999, 188 p. ill. Doctoral thesis.

Language: German with a summary in English.

NAL call no: DISS F1999276

Descriptors: metalloproteins, snake venom haemolytic effects.

Replication of reptilian paramyxovirus in avian host systems. Ahne, W.; Adrian, J.; Mayr, A. *Journal of Veterinary Medicine. Ser.B.* Berlin: Blackwell Wissenschafts Verlag, Feb. 1999, v. 46 (1), p. 57-62. ISSN: 0931-1793.

NAL call no: 41.8 Z52

Descriptors: paramyxovirus, chicken, embryos, eggs, immunohistochemistry.

Serum concentrations of various environmental contaminants and their relationship to sex steroid concentrations and phallus size in juvenile American alligators. Guillette, L.J. Jr.; Brock, J.W.; Rooney, A.A.; Woodward, A.R. *Archives of environmental contamination and toxicology.* New York: Springer Verlag, May 1999, v. 36 (4), p. 447-455. ISSN: 0090-4341.

NAL call no: TD172 A7

Descriptors: alligator, pollutants, adverse effects.

Species dependent specificity of platelet aggregation inhibitors from snake venom. Lombardi, P.; Pelagalli, A.; Avallone, L.; d=Angelo, D.; Belisario, M.A.; D=Angelo, A; Staiano, N. *Journal of Comparative Pathology*. London: W.B. Saunders Company Ltd., Aug. 1999, v. 121 (2), p. 185-190. ISSN: 0021-9975.

NAL call no: 41.8 J82

Descriptors: buffaloes, dogs, horses, snakes, platelet aggregation inhibitors.

Tissue and plasma enzyme activities in juvenile green iguanas. Wagner, R.A.; Wetzel, R. *American Journal of Veterinary Research*. American Veterinary Medical Association. Feb. 1999, v. 60 (2), p. 201-203. ISSN: 0002-9645.

NAL call no: 41.8 Am3A

Descriptors: iguana, blood plasma, liver, kidneys, enzyme activity.

Two-dimensional echocardiographic anatomy of the snake heart (Python molurus bivittatus). Snyder, P.S.; Shaw, N.G.; Heard, D.J. *Veterinary Radiology and Ultrasound*.

American College of Veterinary Radiology. Jan./Feb. 1999, v. 40 (1), p. 66-72. ISSN: 1058-8183.

NAL call no: SF757.8.A4

Descriptors: python molurus, heart, echocardiography, normal values.

Association of Reptilian and Amphibian Veterinarians guidelines for reducing risk of transmission of Salmonella spp. from reptiles to humans.

Journal of the American Veterinary Medical Association. Jul.1, 1998, v. 213 (1), p. 51-52. ISSN: 0003-1488.

NAL call no: 41.8 Am3

Descriptors: reptiles, Salmonella, disease transmission, disease prevention.

Antibiotic effects on cytochromes P450 content and mixed-function oxygenase (MFO) activities in the American alligator (Alligator mississippiensis). Mayeaux, M.H.; Winston, G.W. *Journal of Veterinary Pharmacology and Therapeutics*. Oxford, England: Blackwell Scientific Ltd. Aug. 1998, v. 21 (4), p. 274-282. ISSN: 0140-7783.

NAL call no: SF915.J63

Descriptors: alligator, oxytetracycline, ceftazidime, enrofloxacin, drug effects.

Borreliacidal factor in the blood of the western fence lizard (Sceloporus occidentalis). Lane, R.S.; Quistad, G.B. *Journal of Parasitology*. Lawrence, KS: American Society of Parasitology, Feb. 1998, v. 84 (1), p. 29-34. ISSN: 0022-3395.

NAL call no: 448.8 J824

Descriptors: Sceloporus, borrelia, infection, immunity, antibacterial properties.

Cardiopulmonary and anesthetic effects of propofol administered intraosseously to green iguanas. Bennett, R.A.; Schumacher, J.; Hedjazi Haring, K.; Newell, S.M. *Journal of the American Veterinary Medical Association*. American Veterinary Medical Association. Jan. 1, 1998, v.212 (1), p. 93-98. ISSN: 0003-1488.

NAL call no: 41.8 Am3

Descriptors: iguana, anesthesia, heart rate, respiration rate, dosage, body temperature.

Fatty acid composition of muscle, liver, and depot fat of wild and cultured common snapping turtles (Chelydra

serpentina). Mayeaux, M.H.; Reigh, R.C.; Culley, D.D.Jr. *Journal of the World Aquatic Society*. Baton Rouge, LA: World Aquaculture Society, Jun. 1998, v. 29 (2), p. 234-242. ISSN: 0893-8849.

NAL call no: SH138.W62

Descriptors: Chelydra, fatty acids, chemical composition, lipids, nutrient requirements.

Ribotyping of Salmonella poona in iguana associated zoonotic salmonellosis.

Wu, C.C; Gortari, M.J.de ; Lin, T.L.; Barrett, B. *Journal of Veterinary Diagnostic Investigation*. Turlock, CA. American Association of Veterinary Laboratory Diagnosticians. Apr. 1998, v. 10 (2), p. 188-190. ISSN: 1040-6387.

NAL call no: SF774.J68

Descriptors: iguana, Salmonella, reservoir host, infections, strain differences.

Sex-steroid and thyroid hormone concentrations in juvenile alligators (Alligator mississippiensis) from contaminated and reference lakes in Florida, USA. Crain, D.A.; Guillette, L.J. Jr.; Pickford, D.B.; Percival, H.F.; Woodward, A.B. *Environmental Toxicology and Chemistry*. Pensacola, FL.: SETAC Press. Mar. 1998, v. 17 (3), p. 446-452. ISSN: 0730-7268.

NAL call no: QH545.A1E58

Descriptors: pollutants, estrogens, hormones, adverse effects, endocrine disrupters.

The brown tree snake (Boiga irregularis) as a laboratory animal. Greene, M.J.; Nichols, D.K.; Hoyt, R.F. Jr.; Mason, R.T. *Lab Animal*. N.Y., N.Y.: Nature Publishing Co. Jul./Aug. 1997, v. 26 (7), p. 28-31. ISSN: 0093-7355.

NAL call no: QL55.A1L33

Descriptors: snakes, laboratory animals, animal models, animal husbandry.

Cembrene A and a congeneric ketone isolated from the paracloacal glands of the Chinese alligator (Alligator sinensis).

Mattern, D.L.; Scott, W.D.; McDaniel, C.A.; Weldon, P.J.; Graves, D.E. *Journal of Natural Products*. Downers Grove, IL.: American Society of Pharmacognosy. Aug. 1997, v. 60 (8), p. 828-831. ISSN: 0163-3864.

NAL call no: 442.8 L77

Descriptors: alligator, glands, ketones, spectral analysis, chemical structure.

Effects of endocrine disrupting contaminants on reproduction in the American alligator (Alligator mississippiensis).

Crain, David Andrew. 1997, vii, 153 leaves. ill. Thesis, Un. of Florida.

Descriptors: American alligator, physiology, reproduction, endocrine glands.

Reference ranges of biochemical and haematological values in farmed saltwater crocodile (Crocodylus porosus) yearlings. Millan, J.M.; Janmaat, A.; Richardson, K.C.; Chambers, L.K.; Fomiatti, K.R. *Australian Veterinary Journal*. Brunswick, Vic. Australian Veterinary Association. Nov. 1997, v. 75 (11), p. 814-817. ISSN: 0005-0423.

NAL call no: 41.8 Au72

Descriptors: crocodiles, blood chemistry, hematology, normal values.

Serum AB@ esterases as a nondestructive biomarker for monitoring the exposure of reptiles to organophosphorus insecticides. Sanchez, J.C.; Fossi, M.C.; Focardi, S. *Ecotoxicology and Environmental Safety*. Orlando, FL.: Academic Press.

Oct. 1997, v. 38 (1), p. 45-52. ISSN: 0147-6513.

NAL call no: QH545.A1E29

Descriptors: reptiles, biological indicators, enzyme activity, toxicology.

Serum B esterases as a nondestructive biomarker in the lizard *Gallotia galloti* experimentally treated with parathion. Sanchez, J.C.; Fossi, M.C.; Focardi, S. *Environmental Toxicology and Chemistry*. Pensacola, FL.: SETAC Press. Sept. 1997, v. 16 (9), p. 1954-1961. ISSN: 0730-7268.

NAL call no: QH545.A1E58

Descriptors: esterases, enzyme activity, bioassays, lizards.

Synopsis of the biological data on the green turtle *Chelonia mydas* (Linnaeus 1758). Hirth, Harold. Biological Report 97-1: Washington, D.C.: Fish and Wildlife Service, U.S. Dept. of the Interior, 1997, 120 p., ill. maps.

NAL call no: QH540.U562 no. 971

Descriptors: green turtle, *Chelonia* Genus.

Advanced principles of reptilian therapeutics: The rational selection of empirical antimicrobials. Klingenberg, R.J. *Proceedings of the North American Veterinary Conference*: Eastern States Veterinary Association. Jan. 13-17, 1996, v. 10, p. 833-835.

NAL call no: SF605.N672

Descriptors: reptiles, anti-infective agents, drug therapy.

Bredemyeroside D, a novel triterpenoid saponin from *Bredemeyera floribunda*: A potent snake venom antidote activity on mice. Pereira, B.M.R.; Rosario, M. do; Parente,

J.P.; Abreu-Matos, F.J. de. *Phytotherapy Research:PTR* : Sussex: John Wiley & Sons. Dec. 1996, v. 10 (8), p. 666-669. ISSN: 0951-418X.

NAL call no: RS164.P59

Descriptors: Bredemyeroside D. snake venom, antidote.

Establishment of an animal model for myoglobinuria by use of a myotoxin from *Pseudechis auatralis* (King brown snake) venom in mice. Ponraj, D.; Gopalakrishnakone, P. *Laboratory Animal Science*. Cordova, TN: American Association for Laboratory Animal Science. Aug. 1996, v. 46 (4), p. 393-398. ISSN: 0023-6764.

NAL call no: 410.9 P94

Descriptors: mice, animal models, myoglobinuria, venom, renal function.

Haematological and biochemical values of 10 green iguanas (*Iguana iguana*). Divers, S.J.; Redmayne, G.; Aves, E.K. *Veterinary Record*. London: The British Veterinary Association. Mar. 2, 1996, v. 138 (9), p. 203-205. ISSN: 0042-4900.

NAL call no: 41.8 V641

Descriptors: iguana, blood sampling, blood analysis, hematology, normal values.

Interaction of environmental chemicals with the estrogen and progesterone receptors from the oviduct of the American alligator. Vonier, P.M.; Crain, D.A.; McLachlan, J.A.; Guillette, L.J. Jr.; Arnold, S.F. DHEW Publication no. NIH 72-218. *Environmental Health Perspectives*. Dec. 1996, v. 104 (12), p. 1318-1322. ISSN:0091-6765.

NAL call no: RA565.A1E54

Descriptors: DDT, pesticides,
alligator.

**Radiographic and ultrasonographic
evaluation of egg retention and
peritonitis in two green iguanas
(Iguana iguana).** Love, N.E.;
Douglass, J.P.; Lewbart, G.; Stoskopf,
M. *Veterinary Radiology and
Ultrasound*. American College of
Veterinary Radiology. Jan/Feb. 1996,
v. 37 (1), p. 68-73. ISSN: 1058-8183.

NAL call no: SF757.8.A4

Descriptors: iguana, peritonitis,
radiography, ultrasonography.

**Synthesis and conformation studies of
Bradykinin-potentiating peptides from
snake venoms.** Fedele, Christina.
Thesis, Tierärztliche Hochschule
Hannover, 1996, 129 p., ill.

Language: German with a summary in
English.

NAL call no: DISS F1996241

Descriptors: peptides, Bradykinin,
snake, venom.

**Endocrine regulation of clütero-penis
development in the juvenile American
alligator (Alligator mississippiensis).**
Pickford, Daniel E., Thesis, Un. of
Florida, 1995, xi, 136 leaves, ill.

Descriptors: alligator, physiology,
endocrine glands, reproduction.

**Intraocular pressure variation associated
with body length in young American
alligators (Alligator mississippiensis).**
Whittaker, C.J.G.; Heaton-Jones,
T.G.; Kubilis, P.S.; Smith, P.J.;
Brooks, D.E.; Kosarek, C.; MacKay,
E.O.; Gelatt, K.N. *American Journal
of Veterinary Research*. American
Veterinary Medical Association. Oct.
1995, v. 56 (10), p. 1380-1383. ISSN:
0002-9645.

NAL call no: 41.8 Am3A

Descriptors: alligator, eyes, internal
pressure, body length, correlation.

**Monoclonal antibodies for the measurement
of class-specific antibody responses
in the green turtle (Chelonia mydas).**
Herbst, L.H.; Klein, P.A. *Veterinary
Immunology and Immunopathology*.
Elsevier. Jun. 1995, v. 46 (3-4), p.
317-335. ISSN: 0165-2427.

NAL call no: SF757.2.V38

Descriptors: Chelonis mydas,
monoclonal antibodies, immunoglobulins,
turtles.

**Multiple heterogenous isolates of
Cryptosporidium serpentis from
captive snakes are not transmissible
to neonatal BALB mice (Mus
musculus).** Fayer, R.; Graczyk, T.K.;
Cranfield, M.R. *Journal of
Parasitology*. American Society of
Parasitologists. Jun. 1995, v.81 (3), p.
482-484. ISSN: 0022-3395.

NAL call no: 448.8 J824

Descriptors: serpentes,
cryptosporidium, host specificity, oocysts,
mice.

Reptilian microbiology. Boyer, T.H.
*Proceedings of the North American
Veterinary Conference: Eastern States
Veterinary Association*, Jan. 14-18,
1995, v. 9, p. 641-643.

NAL call no: SF605.N672

Descriptors: reptiles, microbial flora,
pathogens, infections.

**The topography of some endocrine organs in
the Nile crocodile.** Huchzermeyer,
F.W. *Zimbabwe Veterinary Journal*.
Zimbabwe Veterinary Association.
Mar. 1995, v. 26 (1), p. 11, 13-15, 17-
18. ISSN: 1016-1511.

NAL call no: SF601.R5

Descriptors: crocodiles, endocrine glands, thymus gland, thyroid, parathyroid.

Glucuronidation of flumequine by the turtle *Pseudemys scripta elegans*. Vree, T.B.; Hoeben, U.M.; Ewijk-Beneken, E.W.J. van; Kolmer; Mouws, J.F.M. *Journal of Veterinary Pharmacology and Therapeutics*. Oxford: Blackwell Scientific Publications, Feb. 1994, v. 17 (1), p. 80-82. ISSN: 0140-7783.

NAL call no: SF915.J63

Descriptors: turtles, antiinfective agents, drug metabolism, drug excretion.

Glucuronidation of naproxen by the turtle *Pseudemys scripta elegans*. Vree, T.B.; Vree, M.L.; Biggelaar-Martea, M. van den; Verwey van Wissen, C.P.W.C.M.; Nouws, J.F.M. *Journal of Veterinary Pharmacology and Therapeutics*. Oxford: Blackwell Scientific Publications, Feb. 1994, v. 17 (1), p. 74-76. ISSN: 0140-7783.

NAL call no: SF915.J63

Descriptors: turtles, non-steroidal antiinflammatory agents, drug metabolism.

Surface area to volume relationships of snakes support the use of allometric scaling for calculating dosages of pharmaceuticals. Timm, K.I.; Picton, J.S.; Tylman, B. *Laboratory Animal Science*. American Association of Laboratory Animal Science, Feb. 1994, v. 44 (1), p. 60-62. ISSN: 0023-6764.

NAL call no: 410.9 P94

Descriptors: snakes, body surface area, volume determination, dosage, drugs.

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NAL call no: QL55.F43 1993

Descriptors: laboratory animals, snakes, animal experiments, animal welfare.

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NAL call no: 41.8 0N1

Descriptors: crocodile, abdomen, thorax.

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NAL call no: 41.8 0N1

Descriptors: crocodile, digestive tract, immunochemistry.

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NAL call no: 41.8 AM3A

Descriptors: caretta, blood chemistry.

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Descriptors: crocodiles, intestines, histology.

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Descriptors: iguana behavior, courtship, sexual behavior.

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Descriptors: crocodiles, morphine, pethidine, pain, anesthesia, dosage.

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Descriptors: electrophysiology, sodium, potassium.

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NAL call no: 410 J825

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NAL call no: 410 J825

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Descriptors: renal physiology, non-mammal alternative.

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NAL call no: QL55.N66

Descriptors: Iguanidae, Teridae, Colubridae, behavior, endocrinology, neurology.

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Descriptors: turtles, snakes, lizards, crocodylians, physiology, activated oxygen, disease, protective mechanism, augmentation.

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Descriptors: retinase, peptide, proteins.

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Descriptors: cardiopulmonary bi-pass, pH management.

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Descriptors: blood clotting,
cardiovascular disease, diagnosis.

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Descriptors: alligator, physiology,
metabolism.

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exchange.

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Descriptors: model, lizards, snakes,
turtles, reproduction, review.

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Descriptors: immunology, grafting,
cancer.

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psychotropic drugs.

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deficiency, drug therapy, antibiotics.

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Descriptors: snakes, neoplasms,
malignant course, benign course, postmortem.

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Descriptors: reptiles, salmonella, disease transmission, prevention, zoonosis.

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Descriptors: iguana, polyps, cryptosporidiosis, histopathology, lesions.

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Descriptors: iguana, diseases.

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Descriptors: alligator, aquaculture, waste water, treatment, biological filtration.

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- Descriptors: helminths, lizard, host-parasite relationship.
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- NAL call no: 448.8 J824
- Descriptors: snakes, cryptosporidium, disease transmission, host range, histology.
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- Descriptors: iguana, animal behavior, stress.
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- Reproductive disorders of the green iguana.** Stahl, S.J. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association*, Jan. 10-14, 1998, v. 12, p. 810-813.
- NAL call no: SF605.N672
- Descriptors: iguana, reproductive disorders, treatment.
- Regurgitation of snakes: Treat the disease, not the signs.** Raiti, P. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association*, Jan. 10-14, 1998, v. 12, p. 796-797.
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- Descriptors: snakes, vomiting, regurgitation, etiology, treatment.
- Reptile associated salmonellosis.** Austin, C.C.; Wilkins, M.J. *Journal of the American Veterinary Medical Association*. Schaumburg, IL: Mar. 15, 1998, v. 212 (6), p. 866-867. ISSN: 0003-1488.
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- Descriptors: turtles, salmonella, disease transmission, symptoms, children.
- Stuck! Reproductive problems of pet snakes.** Raiti, P. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association*, Jan. 10-14, 1998, v. 12, p. 795-796.
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- Concurrent gout and suspected hypovitaminosis A crocodile hatchlings.** Ariel, E.; Ladds, P.W.; Buenaviaje, G.N. *Australian Veterinary Journal*. Brunswick, Vic.: Australian Veterinary Association, Apr. 1997, v. 75 (4), p. 246-249. ISSN: 0005-0423.
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- Descriptors: crocodile, gout, vitamin A deficiency, histopathology, diet.

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NAL call no: 389.8 J82

Descriptors: iguana, fiber, diet, nutrition, physiology, nutrient intake.

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Descriptors: iguana, animal diseases, animal health.

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Descriptors: reptiles, drugs, medical treatment.

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Descriptors: iguana, exophthalmos, aneurysm, eyes, symptoms, enucleation.

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NAL call no: SF605.N672

Descriptors: reptiles, pharynx, animal diseases.

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Descriptors: iguana, diseases.

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NAL call no: SF605.N672

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NAL call no: QL77.5.Z6

Descriptors: snakes, behavior, feeding, water balance, stress factors, aquatic environment.

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NAL call no: SF605.N672

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NAL call no: SF605.N672

Descriptors: reptiles, reproductive surgery.

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NAL call no: QL77.5.Z6

Descriptors: snakes, vivipary, parturition, litter size, length, weight.

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NAL call no: SF605.N672

Descriptors: reptiles, clinical examination.

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Descriptors: captive snake diseases.

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NAL call no: SF605.N672

Descriptors: pet reptiles.

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NAL call no: SF605.N672

Descriptors: reptiles, nervous system diseases.

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NAL call no: QL77.5.Z6

Descriptors: *Crocodylus*, growth rate, length, data collection.

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Descriptors: captive reptiles, health, welfare.

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NAL call no: SF459.I38F76 1995

Descriptors: green iguanas as pets.

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NAL call no: SF605.N672

Descriptors: reptiles, metabolic bone diseases.

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Descriptors: reptiles, restraint, physical examination.

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NAL call no: SF605.N672

Descriptors: reptiles, dermatology.

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Descriptors: Crotalus, aging, predation, feeding behavior.

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NAL call no: 41.8 R312

Descriptors: snakes, food consumption, food requirements, body weight.

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Descriptors: garter snakes, snakes, care, maintenance.

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NAL call no: 389.8 J82

Descriptors: iguana, growth, diet, dry matter, crude fiber, crude protein.

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NAL call no: RA1242.S53G74 1994

Descriptors: poisonous snakes, amphibians, health aspects.

Euthanasia. Mader, Douglas A. 1994. *Reptiles*, v. 2 (1), p. 6.

NAL call no: SF515.R47

Descriptors: reptiles, euthanasia.

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NAL call no: SF997.5.R4F796 1994

Descriptors: captive reptiles, diseases, surgery, veterinary clinical pathology.

Reptilian gout. Mader, D.R. *Proceedings of the North American Veterinary Conference: Eastern States Veterinary Association*. Jan. 15-20, 1994, p. 890-891.

NAL call no: SF605.N672

Descriptors: reptiles, gout.

A veterinary guide to the parasites of reptiles. Barnard, Susan M.; Upton, Steve J. Malabar, FL.: Krieger Pub. Co., 1994, v. 1, ill. ISBN: 0894648322.

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Descriptors: reptiles, parasites, veterinary parasitology.

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Descriptors: reptiles, euthanasia.

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- NAL call no: SF602.V523
- Descriptors: lizards, iguana, veterinary medicine.
- A practitioner's guide to reptilian husbandry and care.*** Boyer, Thomas Huntington. Lakewood, CO: American Animal Hospital Association, c1993, v. 109 p., ill. ISBN: 0941451356.
- NAL call no: SF459.R4B69 1993
- Descriptors: reptiles, diseases.
- The psychological well-being of reptiles.** Kreger, M.D. *Humane Innovations and Alternatives*. Washington Grove, MD: Psychologists for the Ethical Treatment of Animals. 1993, v. 7, p. 519-523. ISSN: 1062-4805.
- NAL call no: QL55.H8
- Descriptors: reptiles, animal welfare.
- Reptile diseases and culture.*** Jarofke, Dietmar; Lange, Jurgen. Berlin: P. Parey, c1993, 188 p. 4 p. of plates. ill. ISBN: 3489524160.
- Language: German.
- NAL call no: SF515.J37
- Descriptors: reptiles, culture, diseases.
- Ultrasound-guided percutaneous liver biopsy in snakes.** Isaza, R.; Ackerman, N.; Schumacher, J. *Veterinary Radiology and Ultrasound*. Raleigh, N.C.: American College of Veterinary Radiology. Nov./Dec. 1993, v. 34 (6), p. 452-454. ISSN: 1058-8183.
- NAL call no: SF757.8.A4
- Descriptors: constrictor, python, boidae, liver, biopsy, ultrasound, histology.
- Understanding reptile parasites: A basic manual for herpetoculturists and veterinarians.*** Klingenberg, Roger J. Lakeside, CA: Advanced Vivarium Systems, c 1993, 81 p., ill. ISBN: 1882770218.
- NAL call no: SF997.5.R4K58 1993
- Descriptors: captive reptiles, parasites, control, handbooks.
- Effects of handling and restraint in the ball python (*Python regius*) and the blue-tongued skink (*Tiliqua scincoides*).** (Abstract) Kreger, M.D. and Mench, J.A. *Journal of Animal Science*, v. 70 (1), p. 173 (1992).
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- Descriptors: behavior, heterophil/lymphocyte ratio, chronic stress, captivity.
- Environmental influences on the critical oxygen tension, water balance, metabolism, and growth of reptile embryos.*** Kam, Yeong Choy. Thesis, University of Florida, 1992, viii, 114 leaves, ill.
- Descriptors: reptiles, eggs, incubation, embryos, physiology.
- Medicine and diseases of reptiles.** Schaeffer, D.O. In: *The Care and Use of Amphibians, Reptiles, and Fish in Research*. Schaeffer, D.O.; Kleinow, K. and Krulisch, L. (eds.), Scientist Center for Animal Welfare, Bethesda, MD; 1992 (in press), 5 pp.
- NAL call no: SF406.C35 1992
- Descriptors: virus, bacteria, nematodes.
- The Physiological and Behavioral Effects of Handling and Restraint in the ball python (*Python regius*) and the blue-tongued skink (*Tiliqua scincoides*).*** (Thesis) Kreger, M.D. University of Maryland, College Park, MD; 1992.

Descriptors: stress, photoperiod, radioimmunoassay, corticosterone, immunosuppression, activity.

Regarding reptiles. Kreger, M.D. *Science and Animal Care*. v. 3 (3), p. 1,4 (1992).

NAL call no: HV4701.S35

Descriptors: welfare, guidelines, policy.

Anesthesia, analgesia and euthanasia of reptiles and amphibians. Johnson, J.H. 1991, *Proceedings of the American Association of Zoo Veterinarians*, p. 132-138.

NAL call no: SF605.A4

Descriptors: Reptilia, Amphibia, anesthesia, euthanasia.

Biomedical and Surgical Aspects of Captive Reptile Husbandry. Frye, F.L. Krieger Publishing Company, Malabar, FL; 2 vol., 1991, 637 pp.

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Descriptors: physiology, pathology, prevention, anatomy, post-operative care, anesthesia.

Cage design and configuration for arboreal reptiles. Mason, R.T.; Hoyt, Jr., R.F.; Pannell, L.K.; Wellner, E.F. and Demeter, B. *Laboratory Animal Science*, v. 41 (1), p. 84-86 (1991).

NAL call no: 410.9 P94

Descriptors: policy, biophysics, housing, environment.

Diagnosis and treatment of infertility in captive alligators. Cardeilhac, Paul. Florida Dept. of Agriculture & Consumer Services, 1991, 40 p., ill.

NAL call no: SF515.5.A44C37 1991

Descriptors: alligator, infertility, diagnosis, treatment.

Energy requirements for maintenance and growth of wild mammals, birds and reptiles in captivity. Kirkwood, J.K. *The Journal of Nutrition*, v. 121(Suppl.11), p. S29-34 (1991).

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Descriptors: obesity, anorexia, feeding neonates.

Husbandry and clinical evaluation of *Iguana iguana*. Anderson, N.L. *Compendium on Continuing Education for the Practicing Veterinarian*, v. 13 (8), p. 1265-1272 (1991).

NAL call no: SF601.C66

Descriptors: husbandry, exam, diagnosis, treatment, thermoregulation, dietary needs.

Medical management of reptile patients. Jenkins, J.R. *The Compendium on Continuing Education for the Practicing Veterinarian*, v. 13 (6), p. 980-983, 988 (1991).

NAL call no: SF601.C66

Descriptors: pathology, preventative medicine.

A Practical Guide for Feeding Captive Reptiles. Frye, F.L. Krieger Publishing Company, Malabar, FL; 1991, 171 pp.

NAL call no: SF515.F79 1991

Descriptors: health, nutrition, diet.

Prescribing for reptiles. Debuf, Y.M. (ed.), In: *The Veterinary Formulary: Handbook of Medicines Used in Veterinary Practice*. The Pharmaceutical Press, London, England; 1991, pp. 43-45.

- NAL call no: SF916.5.V37 1991
- Descriptors: antibiotics, dosages, parasites.
- Reciprocal changes in corticosterone and testosterone levels following acute and chronic handling stress in the tree lizard, *Urosaurus ornatus*.** Moore, M.C.; Thompson, C.W. and Marler, C.A. *General and Comparative Endocrinology*, v. 81 (2), p. 217-226 (1991).
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- Descriptors: handling, captivity.
- Recommendations for the care of amphibians and reptiles in academic institutions.** Pough, F.H. *ILAR News*. National Academy Press, Washington, DC; 33(4):S1-S21 (1991).
- NAL call no: QL55.A1I43
- Descriptors: breeding, housing, marking, care, photoperiod, thermoregulation.
- A review of anesthesia and chemical restraint in reptiles.** Bennett, R.A. *Journal of Zoo and Wildlife Medicine*, v. 22 (3), p. 282-303 (1991).
- NAL call no: SF601.J6
- Descriptors: pre-anesthetics, local, injectable, hypothermia, inhalants, electro anesthesia.
- The Snakes of Thailand and Their Husbandry.*** Cox, M.J. Krieger Publishing Company, Malabar, FL; 1991, 526 pp.
- NAL call no: SF515.5.S64C68 1991
- Descriptors: housing, breeding, feeding.
- A technique to anesthetize turtles with ether.** Bello, A.A. and Bello-Klein, A. *Physiology and Behavior*, v. 50 (4), p. 847-848 (1991).
- NAL call no: QP1.P4
- Descriptors: cannula, pump, ether.
- Use of oxytocin to induce oviposition in a dystocic saltwater crocodile (*Crocodylus porosus*).** Carmel, B.P. *Australian Veterinary Journal*. Brunswick, Victoria: Australian Veterinary Association. Jun.1991, v. 68 (6), p. 216-217. ISSN: 0005-0423.
- NAL call no: 41.8 AU72
- Descriptors: crocodylus, oxytocin, dystocia, oviposition.
- Husbandry and Preventative Medicine Practices that Increase Reproductive Efficiency of Breeding Colonies of Alligators.*** Cardeilhac, P. Florida Dept. of Agriculture and Consumer Services, Tallahassee, FL; 1990, 47 pp.
- NAL call no: QL666.C929C37
- Descriptors: housing, diet, propagation.
- Growth rate and plasma corticosterone levels in juvenile alligators maintained at different stocking densities.** Elsey, R.M.; Joanen, T.; McNease, L. and Lance, V. *Journal of Experimental Zoology*, v. 255 (1), p. 30-36 (1990).
- NAL call no: 410 J825
- Descriptors: stress, juveniles, crowding.
- A Step-by-step Book About Iguanas.*** Harris, J.C., T.F.H. Publications, Neptune City, NJ; 1990, 64 pp.
- NAL call no: SF459.I38H37

Descriptors: housing, breeding, feeding, nutrition, maintenance.

Stress in reptiles. Lance, V.A. In: *Progress in Comparative Endocrinology: Proceedings of the Eleventh International Symposia on Comparative Endocrinology held in Malaga, Spain, May 14-20, 1989.* August, E.; Scanes, C.G. and Stetson, M.H. (eds.), Wiley-Liss, Inc., New York, NY; 1990, pp. 461-466.

NAL call no: QP187.A1I52 1989

Descriptors: handling, crowding, physiology.

Alligator Aquaculture in the South. Rollason, S. Louisiana Cooperative Extension Service, Baton Rouge, LA; videocassette (18 min.), 1989.

NAL call no: Videocassette no. 966

Descriptors: care of hatchlings, incubation, transport, feed.

Ketamine as an anesthetic for some squamate reptiles. Font, E. and Schwartz, J.M. *Life Sciences*, v. 2, p. 484-486 (1989).

NAL call no: 442.8 L62

Descriptors: colubrids, iguanids, chloroform.

Reptilian surgery part I. Basic principles. Bennett, R.A. *Compendium on Continuing Education for the Practicing Veterinarian*, v. 11 (1), p. 10-21 (1989).

NAL call no: SF601.C66

Descriptors: skin wounds, aseptic techniques, anatomical variation, anesthetics.

Reptilian surgery part II. Management of surgical diseases. Bennett, R.A.

Compendium on Continuing Education for the Practicing Veterinarian. Princeton Jct., NJ; v.11 (2), p. 122-133.

NAL call no: SF601.C66

Descriptors: bacterial infections, wound healing, celiotomy, gastrointestinal abnormalities, treatments.

Evaluation of the reptile patient. Jacobson, E.R. *Contemporary Issues in Small Animal Practice*, v. 9, p. 1-18 (1988).

NAL call no: SF601.C64

Descriptors: behavior, maintenance, care.

Hospital care of the reptile patient. Jarchow, J.L. *Contemporary Issues in Small Animal Practice*, v. 9, p. 19-34 (1988).

NAL call no: SF601.C64

Descriptors: post-operative care, maintenance, analgesia, anaesthesia.

Husbandry and Preventative Medicine Practices That Increase Reproductive Efficiency of Breeding Colonies of Alligators. Cardeilhac, P. Florida Department of Agriculture and Consumer Services, Tallahassee, FL; 1988.

NAL call no: SF459.A4C3

Descriptors: reproduction, maintenance, pathology.

Keeping and Breeding Snakes. Mattison, C. Sterling Publishing Co., New York, NY; 1988, 183 pp.

NAL call no: SF515.5.S64M38

Descriptors: husbandry, maintenance, environment, feeding, diseases.

Practical Methodology Reptiles. Mader, D.R.
University of California at Davis,
School of Veterinary Medicine, Davis,
CA; 1988, 2 videocassettes, VHS, 35
minutes.

NAL call no: Videocassette no.414

Descriptors: euthanasia, handling,
care.

Use of chemotherapeutics in reptile medicine.
Jacobson, E.R. *Contemporary Issues in
Small Animal Practice*, v. 9, p. 35-48
(1988).

NAL call no: SF601.C64

Descriptors: methods, pathology,
treatment.

***Handbook on the Maintenance of Reptiles in
Captivity.*** Welch, K.R.G. Krieger
Publishing Co., Malabar, FL; 1987,
156 pp.

NAL call no: QL665.W4 1987

Descriptors: care, husbandry, feeding.

***Snakes & Lizards: Their Care and Breeding in
Captivity.*** Coborn, J. Newton Abbott
Publishing, English, 1987, 208 pp.

NAL call no: SF515.5.L58C63 1987

Descriptors: husbandry, environment,
maintenance.

***The UFAW Handbook of the Care and
Management of Laboratory Animals.***
Poole, T.B. Bath Press, Avon, Great
Britain, 1987, pp. 716-752.

NAL call no: QL55.U5 1987

Descriptors: reptiles, amphibia, fish,
environment.

Euthanasia of reptiles. Warwick, C. 1985.
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Medical Association, v. 187 (11), p.
1081. ISSN: 0003-1488.

NAL call no: 41.8 AM3

Descriptors: Reptilia, serpentes,
sauria, testudines, euthanasia.

Euthanasia of tortoises. Godfrey, C. 1985.
The Veterinary Record, v. 116, p. 139.
ISSN: 0042-4900.

NAL call no: 41.8 V641

Descriptors: Reptilia, testudines,
tortoise, euthanasia.

**Anesthetic and sedative drug dosage -
amphibians and reptiles.** Canadian
Council on Animal Care. *Guide to the
Care and Use of Experimental
Animals.* Canadian Council on Animal
Care, Ottawa, Ontario, 1984, v. 1, pp.
99.

NAL call no: SF406.C36

Descriptors: primary agent, dose,
route.

Antimicrobial drug dosage - reptiles, fish.
Canadian Council on Animal Care.
*Guide to the Care and Use of
Experimental Animals.* Canadian
Council on Animal Care, Ottawa,
Ontario, 1984, v. 1, pp. 102.

NAL call no: SF406.C36

Descriptors: penicillin G,
chloramphenicol, erythromycin, streptomycin.

Diseases of Amphibians and Reptiles. Hoff,
G.L.; Frye, F.L. and Jacobson, E.R.
Plenum Press, New York, NY; 1984,
784 pp.

NAL call no: SF997.5.A45D57

Descriptors: pathology, medicine,
prevention, diagnosis.

Reptiles. Canadian Council on Animal Care.
In: *Guide to the Care and Use of
Experimental Animals*. Ottawa,
Canada, v. 2, 1984, pp. 19-28.

NAL call no: SF406.C36

Descriptors: housing, nutrition, health
care, restraint.

**Parasites of American alligators (*Alligator
mississippiensis*) in south Florida.**
Cherry, R.H.; Ager, A.L. Jr. *Journal
of Parasitology*. Lawrence: American
Society of Parasitologists. Jun. 1982,
v. 68 (3), p. 509-510. ISSN: 0022-
3395.

NAL call no: 448.8 J824

Descriptors: Florida, alligators.

Diseases of the Reptilia. Cooper, J.E. and
Jackson, O.F. Academic Press, New
York, NY; 1981, 2 volumes.

NAL call no: SF997.5.R4D57

Descriptors: pathology, parasitology,
prevention, epidemiology, treatment.

**Investigatory behavior in snakes, II: Cage
cleaning and the induction of
defecation in snakes.** Chiszar, D.;
Wellborn, S.; Wand, M.A.; Scudder,
K.M. and Smith, H.M. *Animal
Learning and Behavior*, v. 8, p. 505-
510 (1980).

Descriptors: housing, maintenance,
substrate, captivity.

***Reproductive Biology and Diseases of Captive
Reptiles.*** Murphy, J.B. and Collins,
J.T. (eds.), Society for the Study of
Amphibians and Reptiles, Oxford, OH;
1980, 277 pp.

NAL call no: QL669.3.R4

Descriptors: Congresses, pathology,
herpetology, seasonality, territoriality.

**Temperature and light requirements of
captive reptiles.** Regal, P.J. In:
*Reproductive Biology and Diseases of
Captive Reptiles*. Murphy, J.B. and
Collins, J.T. (eds.), Society for the
Study of Amphibians and Reptiles,
1980, pp. 79-91.

NAL call no: QL669.3.R4

Descriptors: ectothermy, maintenance,
thermoregulation.

**Establishment and maintenance of colonies of
parthenogenetic whiptail lizards.**
Townsend, C.R. *International Zoo
Yearbook*, v. 19, p. 80-86 (1979).

NAL call no: QL76.I5

Descriptors: housing, feeding,
temperature.

Laboratory maintenance. Campbell, H.W.
and Busack, S.D. In: *Turtles:
Perspectives and Research*. Harless,
M. and Morlock, H. (eds.), Wiley
Publishing, New York, NY: 1979, pp.
109-125.

Descriptors: care, husbandry,
nutrition.

***A Review of Marking Techniques for
Amphibians and Reptiles.*** Ferner,
J.W. Society for the Study of
Amphibians and Reptiles,
Miscellaneous Pubs., Herpetological
Circular No. 9, 1979.

NAL call no: QL60.5.F4

Descriptors: identification,
methodology.

***Reptiles: Bacterial Diseases of Captive
Reptiles.*** Frye, F.L. Health Sciences
Learning Resources Center, University
of Washington, Seattle, WA; 1975, 55
slides, 1 sound cassette.

NAL call no: Slide no.222

Descriptors: handling, pathology,
medicine, microorganisms, herpetology.

Reptilian Disease Recognition and Treatment.

Dobbs, J.S. Curtis Books, Hollywood,
FL; 1973, 42 pp.

NAL call no: SF997.5.R4D6

Descriptors: pathology, diagnosis,
prevention.

***The Temperature and Water Relations of
Reptiles.*** Cloudsley-Thompson, J.L.
Merrow Publishing Co., Watford,
Herts, England, 1971, 159 pp.

NAL call no: QL669.C63

Descriptors: ectothermy, maintenance,
physiology, rhythmicity.

USEFUL WEBSITES AND RESOURCES

AMPHIBIANS & REPTILES

Alexander Koenig Zoological Research Institute
& Zoological Museum.

Library, Adenaueralle 160, 53113
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[http://www.uni-
bonn.de/museumkoenig/](http://www.uni-bonn.de/museumkoenig/)

Subjects: birds, fish, zoology, fisheries,
reptiles, mammals, insects. 140,00
books and bound periodical volumes.

American Society of Ichthyologists &
Herpetologists (ASIH)

<http://www.asih.org/>

Scientists, educators, students, and
others interested in the study of reptiles,
amphibians and fishes. Publications:
Copeia (quarterly). Also leaflets on
career opportunities.

Amphibians: Guidelines for the breeding, care
and management of laboratory animals

[http://www.nap.edu/html/amphibian/pre
face.html](http://www.nap.edu/html/amphibian/prepare.html)

As stated.

Amphibia Web

[http://elib.cs.berkeley.edu/aw/resources/
biology.html](http://elib.cs.berkeley.edu/aw/resources/biology.html)

Amphibian biology resources,
Amphibian web database, Amphibian lists and
more.

Anapsid.org

<http://www.anapsid.org>

Reptile & Amphibian information
collections. Cyclura research
information, Herp care information,
Iguana care information, Herp societies
and reptile veterinarians. Bibliography,
captive care, health and behavior,
feeding, breeding, illness & injury.

Animal Welfare Information Center, USDA,
ARS, NAL

10301 Baltimore Ave.

Beltsville, MD 20705

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Fax: 301-504-7125

e-mail: awic@nal.usda.gov

<http://www.nal.usda.gov/awic>

Can provide information, literature
searches, workshops, and referrals
related to animals used in biomedical
research exhibition. Publications: *AWIC
Bulletin* (twice a year); bibliographies
and information publications.

Aquatic Research Institute (ARI)

2242 Davis Court

Hayward, CA 94545

Tel: 415-785-2216

Publications: *Aquaculture* (quarterly);
Aquatica (periodic); *Special Reports* (periodic).

ASFA (Aquatic Sciences & Fisheries Abstracts)
Aquaculture Abstracts

United Nations Department of
International Economic & Social Affairs

Food & Agriculture Organization

Rome, Italy and Cambridge Scientific
Abstracts, Bethesda, MD.

Publications: *ASFA Aquaculture
Abstracts* NAL Call no: SH135.A8

Association of Amphibian & Reptile
Veterinarians (ARAV)

<http://www.arav.org>

Grants, Journal of Herpetological
Medicine & Surgery, miscellaneous
publications.

Australian Herpetological Directory

[http://www.jcu.edu.au/school/tbiol/zool
ogy/herp/herp2.shtml](http://www.jcu.edu.au/school/tbiol/zool
ogy/herp/herp2.shtml)

A repository for information on
Australian herps and herpetological
research.

Biol.net: Amphibians

<http://biol.net/Amphibians.htm>

Lots of information, resources and links
for amphibians.

Bush Herpetological Supply

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<http://www.bushherp.com>

Equipment and supplies for herps.

Calculating Drug Dosages for Reptiles

[http://www.leaplizard.com/articles/dosa
ge.html](http://www.leaplizard.com/articles/dosa
ge.html)

A good article on calculating drug
dosages for reptiles by Marcia Rybak &
Stephen L. Barten.

Care Sheets

<http://reptiles2000.8k.com/caresheets>

Information on the care of lizards,
snakes, turtles, frogs, toads, salamanders &
newts.

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Supplier of various species of fish,
amphibians and reptiles.

Category Based Herpetological Web Index

<http://herpetology.com/webdata.hts>

Index of herpetologic web sites by
category.

Cell and Developmental Biology Online

[http://www.uoguelph.ca/zoology/devobi
o/linksbio.htm](http://www.uoguelph.ca/zoology/devobi
o/linksbio.htm)

Lots of good information and links for
amphibians and zebra fish, information network.

Center for North American Herpetology
(CNAH)

<http://www.naherpetology.org/>

Information and links for North
American herps.

Chelonian Research Foundation

<http://www.chelonian.org>

Turtle & tortoise conservation and biology; Newsletters; research monographs; research awards; research institution.

Chicago Herpetological Society

2060 North Clark Street

Chicago, IL 60614

<http://www.chicagoherp.org>

Publications: periodic bulletins.
Funding source for research on reptiles and amphibians.

Colorado Herpetological Society=s Internet Resources Guide

<http://www.coloherp.org/herplink/herporgs.html>

An Internet herp resource guide.

Crocodile Specialists Group

<http://www.flmnh.ufl.edu/natsci/herpetology/crocs.htm>

Conservation; newsletter; publications; photo gallery.

Digital Frog International

<http://www.digitalfrog.com/>

Biology; ecology; software; dissection.

Duke University Marine Laboratory

Privers Island

135 Duke Marine Lab Road

Beaufort, NC 28516-9721

Tel: 252-504-7503

Fax: 252-504-7648

<http://www.env.duke.edu/marinelab/>

Marine and freshwater biomedical sciences center specializing in biochemical toxicology.

Dutch Herpetological Society *Lacerta*

English and Dutch; study and specialists groups; terrarian animal husbandry techniques.

Publications: Journal *Lacerta* 6 times/year; newsletter monthly.

NAL Call no: QL640.L3.

Eco Universe Herpetological Publishing & Distribution

915 Seymor Ave.

Lansing, MI 48906

Tel: 517-487-5595

Fax: 517-371-2709

<http://www.ecouniverse.com/1999index.html>

An all reptile magazine index.

Embryology Tutorials for Zebra Fish, Amphibians & Echinoderms for Undergraduates

http://worms.zoology.wisc.edu/embryology_main.html

As stated.

Fluid & Fluid Therapy in Reptiles

<http://www.anapsid.org/>

Good information on fluid therapy in reptiles including administration of oral and injectable medications and fluid

requirements for reptiles, plus references.

Fund for the Replacement of Animals in Medical Research (FRAME)

Russell & Burch House

96-98 North Sherwood Street

Nottingham NG1 4EE, England

Tel: (0) 115 950 4740

Fax: (0) 115 950 3570

e-mail: frame@frame.org.uk

<http://www.frame.org.uk>

Publications: *Alternatives to Laboratory Animals*.

Hematology Bibliography

<http://www.azvt.org/hemo.htm>

A hematology bibliography for various species.

Herpetological Contents - Herplit Database

Bibilomania

P.O. Box 58355

Salt Lake City, UT 84158-9355

Tel/Fax: 1-800-453-0489

<http://www.herplit.com/contents/>

Searchable database with about 50,000 herp publications.

The Herpetologists= League

<http://www.inhs.uiuc.edu/cbd/HL/HL.html>

Publications: *Herpetologica* Journal (quarterly).

Herpetological Monographs (annually).

HL Communications (Newsletter bi annually).

Research articles, essays, symposia, etc., links.

Herpetological Society Listing

<http://www.onrampinc.net/mhs/herpsoc.htm>

Listing of various society and organization web sites.

Herp Web and Database

<http://herpetology.com>

Reptile and amphibian books and reviews, herpetology, links and more.

Houston Herpetological Supply

<http://www.houstonherp.com/>

Snakes, frozen mice and rats, info for hobbyists.

Interactive Frog Dissection

<http://curry.edschool.virginia.edu/go/frog>

As stated.

Institute of Laboratory Animal Resources (ILAR)

National Academy of Sciences

2101 Constitution Ave. N.W.

Washington, D.C. 20418

Tel: 202-334-2590

<http://dels.nas.edu/ilar/>

Publications: *ILAR News* (quarterly).

ILAR Journal (quarterly).

Animals for Research: A Directory of Sources (suppliers).

International Reptile Breeders Association

P.O. Box 85152-279

San Diego, CA 92186

Tel: 619-445-9966

Fax: 619-445-9904

<http://www.irba.com/>

Events, links, shows.

International Zoo Yearbook

Zoological Society of London

London, England

1959-present

Publications: *International Zoo Yearbook* NAL Call no: QL76.I5.

Contains sections on care, breeding and exhibition of zoo and aquarium animals.

Jason=s Snakes & Reptiles

ijdb.ehu.es/welcome.html

Care sheet for snakes, information, CD titles, links.

Journal of Developmental Biology

<http://www.ijdb.ehu.es/welcome.html>

Journal articles from the Society for Developmental Biology.

Museum of Comparative Zoology

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<http://www.oeb.harvard.edu>

Publications: *Brevoria* (occasionally); *Bulletin* (occasionally); *Check List of Birds of the World*; *Johnsonia* (Mollusks).

Museum of Zoological Publications

1109 Geddes Road, Ann Arbor, MI 48109-1079; Tel: 734-764-0476; Fax: 734-763-4080; e-mail:

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Select Resources and then Publications: Occasional Papers; Miscellaneous Publications on birds, fishes, insects, mammals, mollusks, reptiles, and amphibians.

National Museum of Natural History

Smithsonian Institution.

Department of Invertebrate Zoology

Washington, D.C. 20560-0163

Tel: 202-786-2076

Fax: 202-357-3043

<http://www.mnh.si.edu>

NetVet Amphibians

<http://netvet.wustl.edu/amphib.htm>

Lots of good information and links on amphibians.

NetVet Reptiles

<http://netvet.wustl.edu/reptiles.htm>

Good information on reptiles.

NIH Xenopus Initiative Website

<http://www.nih.gov/science/models/xenopus/>

Progress and plans, needs for research, meetings, publications, funding opportunities, resources.

Recommendations for the Care of Amphibians & Reptiles in Academic Institutions

<http://netvet.wustl.edu/species/reptiles/pough.txt>

Reptiles:

<http://netvet.wustl.edu/reptiles.htm>

Amphibians:

<http://netvet.wustl.edu/amphib.htm>

Reptile & Amphibian Magazine

RD3, Box 3709

Pottsville, PA 17901

1989-present.

Publications: Quarterly. Articles on husbandry methods, advertisements from equipment and animal suppliers.

Reptile, Amphibian Medicine and Veterinary Books

<http://herpetology.com/medbooks.html>

Find your books and order through Amazon.com.

Reptile & Amphibian Resource & Herpetological Information Online

<http://www.drsfostersmith.com/product/shop.cfm?siteid=8&ref=1217&subref=AH>

Information, FAQ=s, equipment, sales.

Reptiles

Fancy Publications, P.O. Box 6050, Mission Viejo, CA 92690. Tel: 949-855-8822,

Toll-free: 800-365-4421; Fax: 949-855-3045. Monthly. ISSN: 1068-1965.

Reptile Resources

<http://www.lib.duke.edu/bes/reptiles/>

Species data, herpetological resources, databases, general biological websites and more.

Salamandra

Deutsche Gesellschaft fr

Herpetologic und Terrarienkunde

Frankfort am Main, Germany

1965-present

Publications: *Salamandra* NAL Call no: QL640.S3.

Scientists Center for Animal Welfare (SCAW)

7833 Walker Drive, Suite 410

Greenbelt, MD 20770

Tel: 301-345-3500

Fax: 301-345-3503

e-mail: info@scaw.com

<http://www.scaw.com>

Purpose: conferences, publications, educational materials on animal welfare.

Publications: Quarterly newsletter, conference proceedings.

*The Care and Use of
Amphibians, Reptiles, and Fish in Research.*

Society for the Study of Amphibians & Reptiles
(Herpetology) (SSAR)

<http://www.ssarherps.org>

Purpose: education, conservation,
research and grants.

Publications: *Herpetological Circulars*
(annual).

Herpetological Review
(quarterly) NAL Call no: QL640.H47

Journal of Herpetology
(quarterly) NAL Call no: QL640.J6

Also publishes books, reprints, and
brochures.

Thermoregulatory Consequences of Transmitter
Implant Surgery in a Small Lizard

[http://www.npwrc.usgs.gov/resource/to
ols/telemetry/thermreg.htm](http://www.npwrc.usgs.gov/resource/tools/telemetry/thermreg.htm)

As stated.

Universities Federation for Animal Welfare

The Old School, Brewhouse Hill

Weathamstead, Hertfordshire AL4 8AN

Tel: 1582 831818

Fax: 1582 831414

e-mail: ufaw@ufaw.org.uk

<http://www.ufaw.org.uk>

Publications: *The UFAW Handbook on
the Care and Management of
Laboratory Animals*. NAL Call no:
QL55.U5 1987.

*The UFAW Handbook on the Care and
Management of Cephalopods in the
Laboratory*. NAL Call no:
SF407.M37B68.

UNSW Embryology: Frog Development

[http://anatomy.med.unsw.edu.au/cbl/em
bryo/OtherEmb/Frog.htm](http://anatomy.med.unsw.edu.au/cbl/embryo/OtherEmb/Frog.htm)

Also information of the fly, worm,
zebra fish, rat, mouse, chicken, and rabbit.

Useful References on Reptile and Amphibian
Captive Breeding and Biology

[http://www.angelfire.com/al/repticare/p
age18.html](http://www.angelfire.com/al/repticare/page18.html)

A list of references on captive breeding
and biology of reptiles and amphibians.

The Virtual Embryo

[http://www.ucalgary.ca/UofC/eduweb/v
irtualembryo/](http://www.ucalgary.ca/UofC/eduweb/virtualembryo/)

Research & learning resources, tutorial,
virtual library and a modular resource to
facilitate learning in developmental
biology.

A Whole-Animal Alternative Model for Pain
Research

[http://www.nal.usda.gov/awic/newslette
rs/v8n3/8n3steve.htm](http://www.nal.usda.gov/awic/newsletters/v8n3/8n3steve.htm)

Whole animal model alternative and
references.

Xenopus Express

<http://www.xenopus.com>

Suppliers, care and feeding, database.

Xenopus tropicalis

<http://faculty.virginia.edu/xtropicalis/>

Amphibian Model for Vertebrate
Development Genetics. Lots of good
information.

Xenopus laevis Frog Colony Care

<http://www.xlaevis.com>

A lot of information on *Xenopus* colony care.

FISH

American Fisheries Society (ASF).

5410 Grosvenor Lane

Bethesda, MD 20814-2199

Tel: 301-897-8616

Fax: 301-897-8096

e-mail: main@fisheries.org

<http://www.fisheries.org>

Publications: *AFS Membership Directory and Handbook* (annual).

Fisheries: Bulletin of the American Fisheries Society (bimonthly).

Journal of Aquatic Animal Health (quarterly).

North American Journal of Fisheries Management (quarterly).

Progressive Fish Culturist (quarterly).

Transactions of the American Fisheries Society (bimonthly).

American Institute of Fishery Research Biologists (AIFRB)

c/o Dr. Gary Sakagawa, S.W. Fisheries Science Center, P.O. Box 271,

La Jolla, CA 92038-0271. Tel: 858-546-7177; Fax: 858-546-5653

e-mail: gary.sakagawa@noaa.gov

<http://www.iattc.org/aifrb/default.htm>

Publications: *Briefs* (bimonthly newsletter).

Aquatic Research Institute (ARI)

2242 Davis Court, Hayward, CA 94545.

Tel: 510-785-2216; Fax: 510-784-0945

e-mail: rofen@prado.com

Provides research materials on fish, fisheries, and aquaculture, aquatic sciences and technology. Research on fish nutrition, diseases, and aquaculture.

Aquatic Systems Consultants

1111 Winterton Street, Pittsburgh, PA 15206-1731. Tel: 412-661-6585;

Fax: 412-661-6585; e-mail:

AquaDolph@aol.com

Consulting on fish and fisheries, marine biology, hydrobiology.

Aquatic Technology

<http://www.aquatictech.com/>

Saltwater aquarium equipment, information, stock and supplies.

Aqua Web Fish Resources

<http://www.aquaweb.pair.com/>

A variety of information related to fish keeping.

Cornell University

Hydroecology & Fish Biology

Research, ecology, publications.

Eel-like fish as models for biomedical research

<http://exn.ca/Stories/1997/02/10/12.asp>

From the Discovery channel.
Information on eels as models for
biomedical research.

common or scientific names, 109,000
common names, synonyms, pictures,
references for fish and larvae.

Enrica Fish Medical Books

814 Washington Ave. SE, Minneapolis,
MN 55414. Tel: 612-623-0707;

Fax: 612-623-0539; Toll-free: 800-728-
8398. Distributor and wholesaler
medical and technical books.

Fish Carcinogenesis & Histopathology Facility Core

[http://www-
apps.niehs.nih.gov/centers/public/fac-core/ctr-
783-3194.htm](http://www-apps.niehs.nih.gov/centers/public/fac-core/ctr-783-3194.htm)

Oregon State University, Marine &
Freshwater Biomedical Sciences Center.

Environmental Health Perspectives: Fishing for Answers

[http://ehpnet1.niehs.nih.gov/docs/1994/
102-3/niehsnews.html](http://ehpnet1.niehs.nih.gov/docs/1994/102-3/niehsnews.html)

From NIEHS News. Information on fish
used in research and environmental
contamination.

Fishing for answers: Fish gene map guides: the
search for human genes.

[http://www.stanford.edu/dept/news/repo
rt/news/may3/fish-53.html](http://www.stanford.edu/dept/news/report/news/may3/fish-53.html)

From the Stanford Online Report. Gene
map guides for fish.

FINS - The Fish Information Service

<http://www.actwin.com/fish/index.php>

Aquarium reference materials, FAQ=s,
index of fish/species, links and more.

FishLink Central.Com

<http://www.fishlinkcentral.com>

A guide to aquarium resources on the
Internet.

Fish

[http://www.animalnetwork.com/animal
network/fish.aspx](http://www.animalnetwork.com/animalnetwork/fish.aspx)

A variety of topics about aquariums,
aquarium library, aquarium archives, tips and
trivia.

Fish Models for Environmental Carcinogenesis: The Rainbow Trout

[http://ehpnet1.niehs.nih.gov/docs/1996/
Suppl-1/bailey-abs.html](http://ehpnet1.niehs.nih.gov/docs/1996/Suppl-1/bailey-abs.html)

Fish models for toxicity in the
environment.

Publications: *Aquarium Frontiers On- line*.

Fish & Shellfish Immunity

[http://www.vims.edu/env/research/imm
une.htm](http://www.vims.edu/env/research/immune.htm)

The study of immune defense
mechanisms in finfish and shellfish.

FishBase

<http://www.fishbase.org/search.cfm>

Global information system on fishes.
Has two searchable databases: FishBase
and LarvalBase. Contains information
on over 23,800 species. Contains

Fish & Shellfish Immunology

<http://www.academicpress.com/fsi>

*Journal of Fish and Shellfish
Immunology* on-line and searchable.

Fish~Vet2.0

<http://users.jagunet.com/~fishvet/>

Consultation services, aid in fish problem diagnosis.

Ichthyology Web Resources

<http://www2.biology.ualberta.ca/jackson.hp/IWR/index.php>

On-line ichthyology resources, specimen database, links.

International Association of Fish & Wildlife Agencies

<http://www.iafwa.org/>

Publications, newsletter, Directory of state and province Fish & Wildlife Agencies and Web Sites, grant program.

Marine Biological Laboratory

Woods Hole, MA 02543

Tel: 508-548-3705 X7002 or 508-289-7002 (library).

Maintains extensive materials on the use of marine animals in biomedical research.

Marine/Freshwater Biomedical Sciences Center, Oregon State University, Corvallis, OR

<http://www.science.oregonstate.edu/mfb/sc/>

Uses aquatic research models to investigate environmentally related human diseases. Currently focused on the study of cancer and neurotoxicity.

Marine and Fresh Water Biomedical Science Center, Univ. of Wisconsin: Annual Reports for the MFB Sciences Center

<http://www.uwm.edu/Dept/MFB/AnnualReports/>

Research papers on fish toxicity, gene mapping, fish as disease models, neuronal patterns, cloning zebra fish, metabolism, genotype and more. Publications 1978 to present.

Netvet - Fish

<http://netvet.wustl.edu/fish.htm>

Information on fish, aquaculture, aquariums and more.

Information on pond fish care and diseases.

Rosenstiel School of Marine and Atmospheric Science

University of Miami

4600 Rickenbacker Causeway

Miami, FL 33149

Tel: 305-361-4738 (Center No.)

Fax: 305-361-4001

<http://www.rsmas.miami.edu/groups/niehs/>

NIEHS funded Marine and Freshwater Biomedical Sciences Center specializing in seafood borne toxins and biochemical toxicology.

Sea Life Supply

740 Tioga Avenue

Sand City, CA 93995-3034

Tel: 831-394-0828

Fax: 831-899-3399

e-mail: info@sealifesupply.com

<http://www.sealifesupply.com>

Supplier of various marine and freshwater species.

University of Washington - Fish Collection

<http://artedi.fish.washington.edu/>

Searchable databases, collection resources, links and more.

Zebrafish Research Database

<http://zfin.org>

http://zfin.org/zf_info/dbase/db.html

A great deal of information on zebrafish.



Animal Welfare Information Center, awic@nal.usda.gov

Updated April 4, 2005

<http://www.nal.usda.gov/awic/pubs/amphib.htm>