

Dr. Raymond A. Saumure

Las Vegas, Nevada

insculpta@gmail.com

(702) 239-4762

Education

McGill University

Department of Natural Resource Sciences

Montréal, Québec, Canada

Ph.D. Wildlife Biology

Dissertation: **Spatial Ecology and Conservation of the North American Wood Turtle (*Glyptemys insculpta*) in a Fragmented Agri-Forest Landscape.**

M.Sc. Wildlife Biology

Thesis: **Growth, Mutilation, and Age Structure of Two Populations of Wood Turtles (*Clemmys insculpta*) in Southern Québec.**

University of Guelph

Department of Integrative Biology

Guelph, Ontario, Canada

B.Sc. Biology

Professional Experience

Principal and Director

WildFauna Incorporated

Environmental Consulting Firm

Las Vegas, Nevada

February 2007 to Present

- Founded and direct successful environmental consulting firm.
- Prepared business proposals that have led to over \$835,000 in sales over last three years.
- Negotiated contracts for data management on large-scale Desert Tortoise translocation projects by NRG Energy, BrightSource Energy, First Solar, US Army National Training Center, and Marine Corps Air Ground Combat Center.
- Develop and manage annual operating budgets.
- Retained services of accounting and legal firms.
- Hired GIS Analyst, Senior Biologists, Biologists, and Data Specialists.
- Process bi-weekly payroll for nine staff members.
- Obtained and renewed state and county business licenses.
- Obtained and renewed General, Professional, Automotive, and Worker's Compensation insurance policies.
- Acquire and maintain computer software, hardware, and peripherals. Maintain network server and secure Citrix ShareFile cloud server.

Environmental Biologist II
Environmental Resources Division
Southern Nevada Water Authority
Las Vegas, Nevada, USA
July 2011 to Present

- Chaired, wrote, and edited Biological Work Group (BWG) consensus plan evaluation revisions to the Biological Monitoring Plan for the Southern Nevada Water Authority's \$3 Billion Groundwater Development (GWD) Project. BWG comprised of five federal and three state agencies.
- Edited and revised relevant sections of Environmental Impact Statement (EIS) for the GWD project.
- Drafted, edited, and revised Desert Tortoise sections of federal Biological Assessment (BA) and final Biological Opinion (BO) for the GWD Project.
- Drafted, edited, and revised Northern Leopard Frog, Southwestern Willow Flycatcher, and Blaine's Pincushion sections of BLM Technical Assistance request to USFWS for GWD Project.
- Wrote, edited, and revised a 15-year Safe Harbor Agreement between Las Vegas Valley Water District and USFWS for the federally endangered Pahrump Poolfish. Worked closely with Southern Nevada Water Authority's Legal Division.
- Participated on USFWS Desert Tortoise and Pahrump Poolfish Recovery Implementation Teams (RIT), and Relict Leopard Frog Conservation Team.
- Participated in annual surveys of Greater Sage Grouse, Northern Leopard Frogs, Relict Dace, Rocky Mountain Junipers, and Pahrump Poolfish.
- Provided key Common Raven video footage for the award-winning documentary film "Tortoise in Peril" directed and produced by Timothy Branning.

Preserve Biologist
Springs Preserve
Las Vegas Valley Water District
Las Vegas, Nevada, USA
January 2005 to June 2011

- Member of the management team that opened and operated the \$250 million Las Vegas Springs Preserve in 2007. Supervised and directed exhibit contractors during the 2-year construction phase.
- Reviewed construction and design blueprints for all museum galleries, veterinary clinic, animal exhibits, and trail interpretive signage. Responsible for selection of all items not specified in plans and changes to plan specifications when required.
- Redesigned proposed outdoor lizard pit into three climate-controlled exhibits to ensure year-round visibility.
- Designed and supervised the construction of a \$250,000 Animal Biosafety Level II quarantine facility for the incoming zoological collection, including layout, electrical, plumbing, HVAC, and caging.
- Reviewed and copy edited hundreds of static interpretive panel texts for the Visitor Center, Desert Living Center, Desert Demonstration Gardens, and hiking trails.
- Reviewed numerous state-of-the-art educational films, animations, and custom video games.
- Member of team that successfully implemented Environmental Management System resulting in ISO 140001 certification. Wrote, reviewed, and/or edited hundreds of documents required for certification, such as standard operating procedures and process flow charts.
- Assisted with acquisition of \$12 million Southern Nevada Public Lands Management Act (SNPLMA) grant. Assisted Engineering Division with the drafting, review of plans, and request for proposals to add an additional hiking trail, restore historic railroad cottages, and create ponds in the historic Las Vegas Creek.

- Coordinated with the Southern Nevada Health District and Las Vegas Animal Control on all public safety issues including monitoring of potential disease vectors (e.g., mosquitoes, feral/invasive species).
- Supervised professional staff comprised of Archaeologist, Registrar, Restoration Ecologist, Senior Zoologist, and three Zoologists. Also responsible for eleven university-level scientific/technical paid interns that supported the above staff.
- Initiated a Performance Management Survey to assess guest satisfaction of venue and services offered. Assessed performance relative to similar facilities operating nationwide.
- Wrote and managed a \$1.3 million Research Division annual budget.
- Initiated, funded, coordinated, and published a multi-agency study on the genetic identity of the presumed extinct Vegas Valley Leopard Frog. Our study revealed that the species was not extinct and lives on in central Arizona, misidentified as the Chiricahua Leopard Frog.
- Obtained \$7,500 grant and worked with NV Energy to install “raptor protectors” on a power line that bisects the 180-acre property.
- Obtained \$75,000 grant to construct a 15-acre Desert Tortoise habitat.
- Surmounted prohibition for commercial display of Nevada wildlife by acquiring animal collection from Arizona, California, and Florida.
- Designed a user interface for a Living Collections module for “KE Emu” archival software used by Research and Curation Divisions.
- Compiled and implemented several habitat restoration plans in concert with Restoration Ecologist and Archaeologist for the Springs Preserve, a National Historic Site.
- Responsible for acquisition, reporting, and renewal of state and federal wildlife permits.
- Drafted job descriptions and hired an Archaeologist, Registrar, Senior Zoologist, and Zoologists.

Ph.D. Research

McGill University

Montréal, Québec, Canada

February 2003 to December 2004

- Completed data analyses for three chapters.
- Wrote and successfully defended dissertation. Committee deliberations lasted one minute.

Senior Conservation Biologist

Shark Reef at Mandalay Bay

Mandalay Bay Resort and Casino

Las Vegas, Nevada, USA

April 2000 to February 2003

- As part of the senior management team, successfully opened a \$50 million for-profit aquarium managed by the Vancouver Aquarium and Marine Science Center for Mandalay Bay Resort and Casino.
- Successfully managed the Association of Zoos and Aquariums accreditation process, making Shark Reef the only AZA accredited facility in Nevada.
- Compiled a Procedures and Protocols Manual that encompassed everything from husbandry standards to an emergency response plan.
- Drafted and implemented a dangerous reptile security protocol for potential crocodilian emergencies. Included annual firearms training for all curatorial staff and aquarists.
- Implemented a PIT tagging program to aid in monitoring the health of all elasmobranchs, moray eels, and reptiles; not a typical practice in the aquarium world at the time.
- Developed and published a new technique to capture and transport crocodilians in captivity.
- Researched the biology of 17 species of sharks and two rays, as well as all reptile species, and advised curatorial staff and aquarists on their husbandry requirements.

- Supervised aquarists at the Husbandry Center quarantine facility.
- Designed and implemented an animal inventory database in Microsoft Access.
- Managed a separate \$240,000 research budget.
- Funded \$70,000 worth of projects such as the Nature Conservancy's in situ Komodo Dragon research, and satellite tracking of Green Turtles (*Chelonia mydas*) by the Caribbean Conservation Corporation.
- Began drafting Ph.D. dissertation.

Animal Health

Technician Biodôme de

Montréal City of

Montréal

December 1997 to April 2000

- Actively sought innovative solutions to complex husbandry issues resulting from numerous free ranging species within each of five ecosystems: Tropical Rainforest, Laurentian Forest, St. Lawrence Marine Estuary, Arctic, and Antarctic.
- Responsible for the husbandry of a collection of approximately 30 species of amphibians (e.g., Poison Dart Frog) and reptiles (e.g., Yacare Caiman), 13 species of mammals (e.g., River Otter, Canada Lynx, Golden Lion Tamarin), and 40 species of birds (e.g., Hyacinth Macaws, King and Gentoo Penguins) residing in one of the five aforementioned ecosystems.

Educator

Biodôme de Montréal

City of Montréal

October 1993 to December 1997

- Used novel educational methods to engage and entertain the public, while explaining complex ecological processes within five ecosystems.
- Developed superior educational abilities while teaching eight hours / day for four years.
- Worked with all age groups in settings ranging from impromptu discussions and classroom presentations to guided VIP and technical tours of the facility.
- Simultaneously pursued and completed M.Sc. at McGill University.

Professional Appointments

International Union for the Conservation of Nature (IUCN) Species Survival Commissions:

- Conservation Breeding Specialist Group (2005 – 2009)
- Crocodile Specialist Group (2001 – 2008)
- Re-Introduction Specialist Group (2001 – Present)
- Tortoise and Freshwater Turtle Specialist Group (2003 – 2009)
- Tortoise and Freshwater Turtle Specialist Group Steering Committee (2009 – 2017)

Relict Leopard Frog Conservation Team (2007 – Present)

Turtle Survival Alliance – Board of Directors (2011 – 2012); Development Committee Co-Chair

NE Mojave Desert Tortoise Recovery Implementation Team (2012 – Present)

Pahrump Poolfish Recovery Implementation Team (2015 – Present)

Québec Multi-Species Turtle Recovery Plan Committee (2003 – 2005)

Memberships

Maine Woodland Owners (2014 – Present)
Association of Zoos and Aquariums (2001 – 2002, 2005 – 2008, 2016)
American Elasmobranch Society (2001 – 2002)
Desert Tortoise Council (2011 – 2014)
Herpetologists' League (2001 – 2006, 2008)
Turtle Survival Alliance (2005 – Present)
The Wildlife Society (2001 – 2013, 2017 – 2018)
Society for the Study of Amphibians and Reptiles (1986 – 2015)
American Society of Ichthyologists and Herpetologists (2001 – 2006, 2008)

Grants

\$ 75,000 (2013) Creation of 15-acre Desert Tortoise habitat at Springs Preserve
\$ 7,500 (2007) Springs Preserve Raptor Protector project
\$ 15,000 (2006) Infrared camera traps for mammal surveys
\$ 12,000,000 (2005) Southern Nevada Public Lands Management Act – Exploration Trail & Historic Cottages
\$ 54,000 (1998) Impact of agricultural development on the Wood Turtle (*Glyptemys insculpta*)
\$ 16,000 (1994) Comparative study of *Clemmys insculpta* populations in agricultural and forest habitats
\$ 15,000 (1993) Survey of the Ottawa River for the Threatened Eastern Spiny Softshell Turtle
\$ 15,000 (1993) Study of four species of freshwater turtles in the Big Creek National Wildlife Area

Media Coverage

National Magazines / Websites

- New Scientist (2011) June 15, 'Extinct' frog was under our noses all the time
- New York Times (2011) June 17, A Frog Endangered, But Extinct No More
- Chronicle of Higher Education (2011) January 31, Scholars Create High-Impact Journal
- AAAS Science Careers (2005) Taking a Gamble - A Wildlife Biologist's Journey to Vegas
- L'Actualité (1996) April 15, pp. 66-68; Amphibian Decline; French equivalent of Time Magazine
- Les Débrouillards (1996) Volume 154, pp. 40-41; French Children's Magazine
- Owl Magazine (1985) January, p. 30; Children's Magazine similar to "Ranger Rick" in USA

Television

- Springs Elemental (2015); Springs Lives; Tortoises Come Home
- Springs Elemental (2011); Springs Lives; Raptor Rapture
- Springs Elemental (2010); Springs Lives; Backyard to Nature
- Springs Elemental (2010); Long-tailed Brush Lizard Hatchling
- Springs Elemental (2009); Springs Lives; Urban Island
- Life After People – The Series (2009); Sin City Meltdown
- "Wild in Vegas" (2000) Nov & Dec.; Las Vegas TV show on wildlife at city facilities
- Zone X (1999) Episode # 36; Québec French TV show on my PhD research

Newspapers

- Journal de Montréal (1998) April 16, p. 7
- La Presse (1995) July 2, p. A10
- The Ottawa Citizen (1984) July 23, p. 41
- Les 2 Rives (1997) Volume 19(46), p. 1
- Carillon (1991) May 22, p. A6
- Biome (1985) Volume 5(2), p. 1

Special Skills

- Website design with Dreamweaver software; see herpconbio.org
- Intermediate program MARK Workshop (5 days); Colorado State University
- ArcView GIS mapping software
- Advanced radio-telemetry experience
- Carpentry
- Bilingual: English and French, written and spoken.

Editorial Responsibilities

Journal: Herpetological Conservation and Biology

- Co-founded an open-access, peer-reviewed, online herpetology journal in 2006
- Member of the Governing Board (2006 – Present)
- Managing Editor – Information Technology (2012 – Present)
- Chelonian Section Editor (2008 – 2011, 2015 – 2016)
- Webmaster; designed and maintain journal website (2007 – Present)

Monograph: Conservation Biology of Freshwater Turtles and Tortoises

Rhodin, A.G.J., P.C.H. Pritchard, P.P. van Dijk, **R.A. Saumure**, K.A. Buhlmann, and J.B. Iverson (Eds.).
Chelonian Research Monographs 5.

- Edited and published 91 species accounts on turtle and tortoise species

Books: Scientific Advisor / Editor

Ashton, R.E., Jr., and P.S. Ashton. 2008. The Natural History and Management of the Gopher Tortoise (*Gopherus polyphemus* Daudin). Krieger Press, Melbourne, Florida.

Desroches, J.-F., and D. Rodrigue. 2004. Amphibiens et Reptiles du Québec et des Maritimes. Éditions Michel Quintin, Waterloo, Québec. [French]

Sunset Books. 1997. Water Gardens. Sunset Publishing Corporation, Menlo Park, California.

Publications

Saumure, R.A. 2014. Poem: Turtle Glade West. *Chelonian Conservation and Biology* 13:286.

Steen, D.A., J.P. Gibbs, K.A. Buhlmann, J.L. Carr, B.W. Compton, J.D. Congdon, J.S. Doody, J.C. Godwin, K.L. Holcomb, D.R. Jackson, F.J. Janzen, G. Johnson, M.T. Jones, J.T. Lamer, T.A. Langen, M.V. Plummer, J.W. Rowe, **R.A. Saumure**, J.K. Tucker, and D.S. Wilson. 2012. Terrestrial habitat requirements of nesting freshwater turtles. *Biological Conservation* 150:121–128.

Hekkala, E.R., **R.A. Saumure**, J.R. Jaeger, H.-W. Herrmann, M. Sredl, M. Culver, D. Bradford, D. Drabek, and M.J. Blum. 2011. Resurrecting an extinct species: Archival DNA, taxonomy, and conservation of the Vegas Valley Leopard Frog. *Conservation Genetics* 12:1379–1385.

Saumure, R.A., T.B. Herman, and R.D. Titman. 2010. Effects of patch size and habitat structure on the movements of *Glyptemys insculpta*. *Herpetological Conservation and Biology* 5:403–413.

- Saumure, R.A.** 2010. Rapport sur la situation de la Tortue Musquée (*Sternotherus odoratus*) au Québec. Ministère des Ressources naturelles et de la Faune du Québec, Faune Québec. [French]
- Grogan, W.L., Jr., **R.A. Saumure**, J. Maceachern, L. Allen, and M.D. Pulsifer. 2009. *Glyptemys insculpta* (Wood Turtle). Ectoparasites. *Herpetological Review* 40:333–334.
- Saumure, R.A.** 2008. Book Review: Biology of Turtles. *Herpetological Bulletin* 106:42–44.
- Walde, A.D., and **R.A. Saumure**. 2008. *Glyptemys insculpta* (Wood Turtle). Maximum Clutch Size. *Herpetological Review* 29:81–82.
- Walde, A.D., P.J. Baker, and **R.A. Saumure**. 2008. *Glyptemys insculpta* (Wood Turtle). Hatchling Behavior. *Herpetological Review* 39:82.
- Walde, A.D., J.R. Bider, D. Masse, **R.A. Saumure**, and R.D. Titman. 2007. Nesting ecology and hatching success of the Wood Turtle, *Glyptemys insculpta*, in Québec. *Herpetological Conservation and Biology* 2:49–60.
- Saumure, R.A.**, R.D. Titman, and T.B. Herman. 2007. Effects of haying and agricultural practices on a declining species: the North American Wood Turtle, *Glyptemys insculpta*. *Biological Conservation* 135: 581–591.
- Saumure, R.A.** 2007. *Actinemys marmorata*. Pp. 227 In Ecology, Conservation and Status of Reptiles in Canada. Seburn, C.N.L., and C.A. Bishop (Eds.). Society for the Study of Amphibians and Reptiles. *Herpetological Conservation* 2.
- Saumure, R.A.**, A.D. Walde, and T.A. Wheeler. 2006. Nonpredatory fly larvae (*Delia platura*: Anthomyiidae) discovered in the nest of a Northern Map Turtle (*Graptemys geographica*). *Chelonian Conservation and Biology* 5:274–275.
- Walde, A.D., and **R.A. Saumure**. 2006. *Apalone ferox* (Florida Softshell Turtle). Predation. *Herpetological Review* 37:77.
- Steen, D.A., M.J. Aresco, S.G. Beilke, B.W. Compton, E.P. Condon, C.K. Dodd, Jr., H. Forrester, J.W. Gibbons, J.L. Greene, G. Johnson, T.A. Langen, M.J. Oldham, D.N. Oxier, **R.A. Saumure**, F.W. Schueler, J. Sleeman, L.L. Smith, J.K. Tucker, and J.P. Gibbs. 2006. Relative vulnerability of female turtles to road mortality. *Animal Conservation* 9:269–273.
- Saumure, R.A.**, B. Freiermuth, J. Jundt, L. Rowlett, and J. Jewell. 2002. A new technique for the safe capture and transport of crocodylians in captivity. *Herpetological Review* 33:294–296.
- Saumure, R.A.** 2001. Kyphosis in a Musk Turtle (*Sternotherus odoratus*) from Ontario, Canada. *Chelonian Conservation and Biology* 4:159.
- Saumure, R.A.** 2001. Limb mutilations in Snapping Turtles, *Chelydra serpentina*. *Canadian Field- Naturalist* 115:182–184.
- Saumure, R.A.**, and J.C. Beane. 2001. *Clemmys muhlenbergii* (Bog Turtle). Ectoparasites. *Herpetological Review* 32:38.
- Saumure, R.A.**, and J.S. Doody. 2000. *Carettochelys insculpta* (Pig-nosed Turtle). Ectoparasites. *Herpetological Review* 31:237–238.
- Saumure, R.A.**, and J.R. Bider. 1998. Impact of agricultural development on a population of Wood Turtles (*Clemmys insculpta*) in southern Québec, Canada. *Chelonian Conservation and Biology* 3:37–45.
- Saumure, R.A.**, and D. Rodrigue. 1998. Albino Snapping Turtle (*Chelydra serpentina*). *Canadian Field- Naturalist* 112:344.

- Saumure, R.A.**, and J.S. Doody. 1998. *Amphiuma tridactylum* (Three-toed Amphiuma). Ectoparasites. Herpetological Review 29:163.
- Saumure, R.A.**, and S.L. Carter. 1998. *Clemmys muhlenbergii* (Bog Turtle). Parasites. Herpetological Review 29:98.
- Graham, T.E., **R.A. Saumure**, and B. Ericson. 1997. Map Turtle winter leech loads. Journal of Parasitology 83: 1185–1186.
- Saumure, R.A.**, and J.R. Bider. 1996. *Clemmys insculpta* (Wood Turtle). Ectoparasites. Herpetological Review 27:197–198.
- Saumure, R.A.** 1996. No fish for frogs. Canadian Wildlife / Biosphère Vol. 2. July/August Issue, p. 5.
- Saumure, R.A.** 1996. Geographic Distribution: *Chelydra serpentina serpentina* (Common Snapping Turtle). Herpetological Review 27:150.
- Colt, L.C. Jr., **R.A. Saumure**, and S. Baskinger. 1995. First record of the algal genus *Basycladia* (Chlorophyta, Cladophorales) in Canada. Canadian Field-Naturalist 109:454–455.
- Saumure, R.A.** 1995. Frog Alert. Canadian Wildlife / Biosphère Vol. 1. March/April Issue, p. 39.
- Saumure, R.A.**, and P.J. Livingston. 1994. *Graptemys geographica* (Common Map Turtle). Parasites. Herpetological Review 25:121.
- Saumure, R.A.** 1993. Long Point turtle news. Bulletin of the Canadian Association of Herpetologists 7: 22–23.
- Saumure, R.A.** 1993. *Rana clamitans* (Green Frog). Albinism. Herpetological Review 24:31.
- Saumure, R.A.** 1993. *Rana catesbeiana* (Bullfrog). Predation. Herpetological Review 24:30.
- Saumure, R.A.** 1992. *Clemmys insculpta* (Wood Turtle). Size. Herpetological Review 23:116.
- Saumure, R.A.** 1990. *Emydoidea blandingi* (Blanding's Turtle). Parasites. Herpetological Review 21:60.
- Saumure, R.A.** 1985. Wood Turtle (*Clemmys insculpta*). Chorus: Newsletter of the Ottawa Amphibian and Reptile Association 2(6):3–4.

Editorials

- Board of Directors. 2017. New Developments in processing manuscripts at Herpetological Conservation and Biology. Herpetological Conservation and Biology 12(3):i–ii.
- Board of Directors. 2016. Recent editor changes at Herpetological Conservation and Biology. Herpetological Conservation and Biology 11(3):i–ii.
- Board of Directors. 2016. Recent changes at Herpetological Conservation and Biology. Herpetological Conservation and Biology 11(1):i.
- Board of Directors. 2015. Herpetological Conservation and Biology in our tenth year. Herpetological Conservation and Biology 10(3):ii–iii.
- Saumure, R.A.** and A.D. Walde. 2014. Herpetological Conservation and Biology incorporated. Herpetological Conservation and Biology 9:ii.
- Walde, A.D. and **R.A. Saumure**. 2013. Herpetological Conservation and Biology continues to grow. Herpetological Conservation and Biology 8:iv–vi.

Saumure, R.A. 2010. Herpetological Conservation and Biology: Metamorphosis. Herpetological Conservation and Biology 5:i.

Saumure, R.A. 2009. Herpetological Conservation and Biology: Milestones. Herpetological Conservation and Biology 4:i-ii.

Saumure, R.A. 2007. Herpetological Conservation and Biology: A successful first year. Herpetological Conservation and Biology 2:i-iii.

Bury, R.B., M.L. McCallum, D.J. Germano, **R.A. Saumure**, and S.E. Trauth. 2006. A revisit of a classic paper by Norm Scott on amphibian and reptile community ecology. Herpetological Conservation and Biology 1:133-134.

Bury, R.B., M.L. McCallum, S.E. Trauth, and **R.A. Saumure**. 2006. Dawning of Herpetological Conservation and Biology: A special welcome to your new journal. Herpetological Conservation and Biology 1:i-iii.

Technical Reports

Biological Work Group. 2016. Evaluation of Northern Leopard Frog sampling designs for the Spring Valley Stipulation. Nevada.

Biological Work Group. 2015. Evaluation of springsnail and macroinvertebrate sampling designs for the Spring Valley Stipulation. Nevada.

Biological Work Group. 2014. Evaluation of fish sampling designs for the Spring Valley Stipulation. Nevada.

Plan de rétablissement de cinq espèces de tortues au Québec pour les années 2005 à 2010: la tortue des bois (*Glyptemys insculpta*), la tortue géographique (*Graptemys geographica*), la tortue mouchetée (*Emydoidea blandingii*), la tortue musquée (*Sternotherus odoratus*) et la tortue ponctuée (*Clemmys guttata*). 2005. Ministère des Ressources naturelles et de la Faune, Québec. 57 pages. [French]

Saumure, R.A., and J. Bonin. 1998. A key to the eggs and eggshells of Québec freshwater turtles. Final report to the Fondation de la faune du Québec. 24 pages. [French]

Saumure, R.A. 1997. The natural history of four species of turtles inhabiting the Big Creek National Wildlife Area. Report to the Canadian Wildlife Service. 35 pages.

Saumure, R.A. 1995. Turtle research in the Big Creek National Wildlife Area. Report to the Canadian Wildlife Service. 82 pages.

Saumure, R.A. 1992. A report on the pilot year of a mark-recapture study on four species of turtles inhabiting the Big Creek National Wildlife Area, Long Point, Ontario. Report to the Canadian Wildlife Service. 21 pages.