Scott William Herke

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SUMMARY

Manager of Genomics Core (Louisiana State University):
- 15^{+} years in Core management, with a drive for workflow optimization to improve results, streamline procedures, and reduce costs.
- Passionate about expanding instrument capabilities, developing assays/techniques, and troubleshooting recalcitrant assays for clients.
- Broad experience in molecular biology techniques such as electrophoresis, PCR, qPCR, DNA/RNA assays, and DNA Sequencing (Sanger | Next Generation Sequencing [NGS]).

PROFESSIONAL EXPERIENCE (https://www.linkedin.com/in/scott-herke-384b1122/)

Manager, Genomics Core (07/2006 to present):
- Employer: LSU, Dept. of Biological Sciences (Dr. Mark Batzer).
- Expanded Core usage and offerings to the LSU College of Science by:
  - constructing a Core website for information, submission requests, and LIMS management;
  - negotiating aggressive pricing for reagents, instruments, and multi-year service contracts;
  - slashing client DNA Sanger-Sequencing costs (>75%) by optimizing reactions;
  - minimizing NGS library construction costs by improving on manufacturer workflows; and,
  - saving >$20,000 annually by innovations for capillary array regeneration and POP7 longevity.
- Enhanced molecular biology research of faculty, staff, and graduate students by:
  - quantifying, purifying, and size-selecting DNA and RNA samples;
  - resolving issues with client molecular-biology assays through my troubleshooting expertise;
  - providing wet-bench services for DNA sequencing platforms (NGS | Sanger); and,
  - innovating methods for Ion Torrent NGS chemistry beyond officially-supported applications.
- 2021 testimonials: https://genomics.lsu.edu/survey/survey-testimonials-comments.docx.
- Instruments: Ion Torrent S5 and PGM (OneTouch 2); Illumina GAIIx; ABI 3130xl Genetic Analyzer | QuantStudio 6; Agilent 2100 Bioanalyzer; Sage Science BluePippin; ThermoFisher Qubit | E-gel; GE Typhoon 8600; Mettler-Toledo SmartCheck; Diagenode Bioruptor NGS.
- Analysis Software: Ion Torrent Suite; Agilent 2100 Expert; GE ImageQuant; ABI Sequencing Analysis | Sequence Scanner | Primer Express | GeneMapper.

Senior Postdoctoral Researcher (08/2003-07/2006):
- Employer: LSU, Dept. of Biological Sciences (Dr. Mark Batzer).
- Elucidated primate phylogenetic histories and developed forensic methods through characterization of mobile element (Alu and LINE elements) genetic variation.
- Enhanced DNA production from laboratory cell cultures by innovative protocols for:
  - growing massive numbers of cells on Cytodex-1 microcarrier beads in small stir-flasks; and,
  - mass-harvesting nuclei (DNA extraction) by a simple stripping-solution and centrifugation.

PROFESSIONAL EXPERIENCE (continued)

Postdoctoral Researcher (08/2000-08/2003):
- Employer: LSU, Dept. of Biological Sciences (Dr. Bryan Rogers).
- Elucidated mechanisms of embryonic development, through RNA-interference of homeotic-related genes in milkweed bugs (*Oncopeltus fasciatus*).

Postdoctoral Researcher (01/2000-08/2000):
- Employer: LSU, Dept. of Environmental Studies (Dr. Vincent Wilson).
- Validated a P^{32}-based cancer detection technique for oncogenic gene hp53.

Ph.D. Graduate Student (08/1993-12/1999):
- Employer: LSU, Dept. of Biological Sciences (Dr. David Foltz).
- Dissertation Topic: Population genetic structures of *Loligo pealei* and *L. plei* (cephalopods) through analyses of a mitochondrial gene (cytochrome c oxidase, subunit I).
- Teaching Assistant: Introductory Biology 1208; Zoology 1509; and, Honors Zoology 1203.

Ecologist, Project Manager (09/1988-08/1993):
- Employer: U.S. Army Corps of Engineers (USACE), Regulatory Office, New England District.
- Enhanced core mission of regulatory program under the Clean Water Act & the Rivers & Harbors Act of 1899 (see official commendations in Honors) by:
  - continuous development of project management skills and professional expertise in the field of wetland delineation and the assessment of wetland functions and values;
  - aggressively communicating regulatory program goals and requirements to applicants, resulting in an exceptional level of productivity;
  - guiding applicants toward project revisions that minimized environmental degradation while satisfying their own project goals;
  - developing relationships with relevant State and federal agencies, leading to applicant cost-savings through more efficient and timely coordination on permit applications; and,
  - resolving complex, sensitive permit applications by an organized approach to issue resolution and a firm grasp of Corps' regulations as well as those of other federal and State agencies.
- Job Requirements: Prepared reports documenting environmental and legal rationales for approving or denying project applications. Coordinated reviews with the public, various public interest groups, internal Corps personnel, NH Wetlands Board and RI DEM (WQC, CZM), USFWS & NMFS (Endangered Species Act and special resource issues), U.S. EPA, FEMA, and ACHP (National Historic Preservation Act). Inspected project sites to delineate jurisdictional boundaries and to assess the water, wetland, and public interest issues; analyzed project plans, wetland delineation reports, alternative analyses, and mitigation proposals.

M.S. Graduate Student (08/1986-08/1988):
- Employer: University of Maine, ME Coop. Fish & Wildlife Research Unit (Dr. John Moring).
- Thesis Topic: Natural hybridization, age structures, food habits, and movement patterns (Floy tags and radio-telemetry) of the illegally-introduced northern pike (*Esox lucius*) and the native chain pickerel (*E. niger*) in the Belgrade Lakes of Maine.
- Teaching Assistant: Introductory Biology 100 and Introductory Zoology 204.

PROFESSIONAL SERVICE

- Associate Editor, Gene (Elsevier), 2011 to 2022.
- Associate Editor, Genomics (Elsevier), 2012 to 2014.
- Editorial Board member, Analytical Biochemistry (Elsevier), 2010 to present.
- Reviewer: Analytical Biochemistry, Electrophoresis, Gene, Genomics, and PloS One.

EDUCATION

- Louisiana State University, Baton Rouge, LA
  Ph.D., 1999 (3.983 GPA; 4.0 scale)
  Major: Biological Sciences (Minor: Fisheries)

- University of Maine, Orono, ME
  M.S., 1988 (3.955 GPA; 4.0 scale)
  Major: Zoology

- Louisiana State University, Baton Rouge, LA
  B.S., 1985 *magna cum laude* (3.877 GPA; 4.0 scale)
  Major: Forestry (Minor: Wildlife)

JOB SKILLS

Management:
- Public speaking;
- Multi-tasking amongst client projects;
- Supervision and training of graduate students and post-doctorates;
- Maintenance of laboratory instruments, supplies, and service contracts; and,
- Conflict-resolution among parties with mutually-exclusive interests.

Molecular biology:
- RNAi;
- Cell culture;
- DNA cloning;
- Allozyme analyses;
- Microfluidic DNA & RNA analysis;
- Capillary and slab-gel electrophoresis;
- DNA and RNA techniques related to PCR (polymerase chain reaction); and,
- DNA sequencing (Sanger Sequencing; NGS [Illumina & Ion Torrent]).

Genetic Analysis software (e.g.):
- NCBI online tools;
- BioEdit, CODEHOP, and DNASTAR (Lasergene); and,
- ABI DNA software (Sequence Scanner | Sequence Analysis).

Website software:
- PHP and HTML code;
- PHP Booked; and,
- MySQL Administrator.

GRANTS and PUBLICATIONS

- Storer, J.M., J.A. Walker, L.C. Rewerts, M.A. Brown, T.O. Beckstrom, **S.W. Herke**, C. Roos, & M.A. Batzer 2022. Owl monkey Alu insertion polymorphisms and Aotus phylogenetics. Genes 13:2069.
- Wang, K., F. Donnarumma, **S.W. Herke**, C. Dong, P.F. Herke, K.K. Murray. 2019. RNA sampling from tissue sections using infrared laser ablation. Analytica Chimica Acta 1063:91-98. doi: 10.1016/j.aca.2019.02.054. Epub 2019 Mar 7.
- National Science Foundation grant (DBI-1556000): Murray, K.K. (PI) and **S.W. Herke** (Co-PI). IDBR: TYPE A Nanoscale Laser Ablation Capture for Single Cell Genomics.
- Wang, K., F. Donnarumma, **S.W. Herke**, P.F. Herke, K.K. Murray. 2017. Infrared Laser Ablation Sample Transfer of Tissue DNA for Genomic Analysis. Analytical and Bioanalytical Chemistry 409(17): 4119-4226. doi:10.1007/s00216-017-0373-z (July, Paper in Forefront).
- Bakshi, A., **S.W. Herke**, M.A. Batzer and J. Kim. 2015. DNA methylation variation of human-specific Alu repeats. Epigenetics 11(2): 163-173, doi: 10.1080/15592294.2015.1130518.
- McLain, A.T., T.J. Meyer, C. Faulk, **S.W. Herke**, J.M. Oldenburg, M.G. Bourgeois, C.F. Abshire, C. Roos, and M.A. Batzer. 2012. An Alu-Based Phylogeny of Lemurs (Infraorder: Lemuriformes). PLoS ONE 7(8):e44035. doi:10.1371/journal.pone.0044035.
- **Herke, S.W**., J. Xing, D.A. Ray, J.W. Zimmerman, R. Cordaux and M.A. Batzer. 2007. A SINE-based dichotomous key for primate identification. Gene 390:39-51.
- Cordaux, R., D.J. Hedges, **S.W. Herke**, and M.A. Batzer. 2006. Estimating the retrotransposition rate of human *Alu* elements. Gene 373:134-137.
- **Herke**, **S.W.,** P.A. Callinan, J. Wang, R.K. Garber, P. Liang, and M.A. Batzer. 2005. *Alu* retrotransposition-mediated deletion. Journal of Molecular Biology 348:791-800.
- Ray, D.A, D.J. Hedges, **S.W. Herke**, J.D. Fowlkes, E.W. Barnes, D.K. LaVie, L.M. Goodwin, L.D. Densmore and M.A. Batzer. 2005. Chompy: An infestation of MITE-like repetitive elements in the crocodilian genome. Gene 362: 1-10.
- **Herke, S.W.**, N.V. Serio and B.T. Rogers. 2005. Functional analyses of *tiptop* and *Antennapedia* in the embryonic development of *Oncopeltus fasciatus* suggest an evolutionary pathway from ground state to insect legs. Development 132:27-34.
- Garber, R.K., D.J. Hedges, **S.W. Herke**, N.W. Hazard and M.A Batzer. 2005. The *Alu* Yc1 Subfamily: Sorting the Wheat from the Chaff. Cytogenetic and Genome Research 110:537-542.
- **Herke, S.W.** and D.W. Foltz. 2002. Phylogeography of two squid (*Loligo pealei* and *L. plei*) in the Gulf of Mexico and northwestern Atlantic Ocean. Marine Biology 140:103-115. (PhD. topic, 1999).
- **Herke, S.W.** and J.R. Moring. 1999. "Soft" harness for external attachment of large radio transmitters to northern pike (*Esox lucius*). Fisheries Research 39:305-312.
- Foltz, D.W., J.P. Breaux, E.L. Campagnaro, **S.W. Herke**, A.E. Himel, A.W. Hrincevich, J.W. Tamplin, and W.B. Stickle. 1996. Limited morphological differences between genetically identified cryptic species within the *Leptasterias hexactis* complex (Echinodermata: Asteroidea). Canadian Journal of Zoology 74:1275-1283.
- **Herke, S.W.**, I. Kornfield, P. Moran, and J.R. Moring. 1990. Molecular confirmation of hybridization between northern pike (*Esox lucius*) and chain pickerel (*E. niger*). Copeia 1990(3):846-850.
- Moring, J.R., M.T. Negus, R.D. McCullough, & **S.W. Herke**. 1989. Large concentrations of submerged pulpwood logs as fish attraction structures in a reservoir. Bulletin of Marine Science 44(2):609-615.
- **Herke, S.W**. 1988. Natural hybridization and biology of northern pike (*Esox lucius*) and chain pickerel (*E. niger*) in the Belgrade Lakes of Maine. Master's thesis. Univ. of ME, Orono.

HONORS, AWARDS, & MEMBERSHIPS

U.S. Army Corps of Engineers, New England Division

Official commendations for exceptional performance (1993, 1991, 1990).

- **13 July 1993**: "Exceptional performance during the period September 1, 1992 to April 30, 1993. Scott's outstanding project management skills and professional expertise continue to result in the resolution of many projects of a complex nature. His familiarity with the workings of the State agencies in Rhode Island has enabled him to develop a more efficient method of dealing with Water Quality Certification and Coastal Zone Management issues in the State. This often allowed for the successful completion of individual permit cases, avoiding additional costly delays to applicants. Scott's intelligent and exceptionally well organized approach to issue resolution, in addition to his attention to the special needs of our program and its customers, is of particular note and is recognized by this award."
- **6 August 1991**: "His exceptional ability to manage a large and complex workload. He assumed the responsibility of complex Rhode Island projects in the absence of senior personnel within the Branch. He was able to maintain his high level of productivity and successfully resolve a significant number of complex and sensitive projects. His efforts reflect great credit upon him and the Corps of Engineers."
- **17 December 1990**: "Exceptional performance for the period October 23, 1989 through April 30, 1990 and his expertise in the field of wetland delineation and the assessment of wetland functions and values which has made him one of the most valued members of the Division. In addition, his fine grasp of the Regulatory Program and its goals, and his aggressive communication of these to applicants have resulted in an exceptional level of productivity which reflects credit upon Scott and the Corps of Engineers."

Scholarships (Louisiana State University)

- Board of Regents Fellowship (Ph.D., 1993-1997).
- LSU Alumni Scholar Award (Undergraduate, 1981-1985).
- Rockefeller Scholarship (Undergraduate, 1981-1985).
- Woods and Waters Club Award (Undergraduate, 1984).
- Charles E. Stewart Scholarship (Undergraduate, 1984).
- F.O. Bateman Scholarship (Undergraduate, 1983).

Research and Travel Awards

- Travel Awards (McDaniels/Graduate School/Department/BioGrads: 1997 and 1998).
- Louisiana Univ. Marine Consortium Foundation Graduate Student Research Grant (1995).
- University of Maine Association of Graduate Students Grant (1988).
- Migratory Fish Research Institute (Maine) Award (1986 and 1988).

Undergraduate Honor Societies & Organizations (Louisiana State University)

- Chairman, LSU Student Chapter of the Society of American Foresters (1984-1985).
- Phi Kappa Phi Outstanding Senior Award (1983-1984).
- Xi Sigma Pi: Forestry Fraternity (1983). Phi Eta Sigma: Academic Fraternity (1982).