

**LARRY W. TURNER**  
**Consultant/ Environmental Toxicologist**  
**Compliance Services International**

**SUMMARY OF EXPERIENCE**

**PROFESSIONAL EXPERIENCE**

Over 35 years of laboratory and field biological research, college and university teaching, environmental toxicology, risk assessment, regulatory support, and endangered species program management. Specialist in ecological toxicology and risk assessment, especially for threatened and endangered species, for pesticides under FIFRA and industrial chemicals under TSCA.

27 years Environmental Toxicology Research and Risk Assessment with EPA

- Endangered Species Project Manager and Senior Scientist for 17 years
- Risk assessments and other litigation support for endangered species issues
- Development of ecotoxicological test methods for FIFRA, TSCA, & OECD
- Review, validation, and analysis of ecotoxicological tests submitted to EPA
- Development and implementation of FIFRA & TSCA risk assessment methodology
- Development of Good Laboratory Practices for ecological testing for FIFRA & TSCA
- Expert witness for pesticides hearings

2 years Consultation with CSI

- Consultation on endangered species locations, habits, habitats, and associations
- Consultation on pesticides and pesticide risk assessment

6 years Academic employment

- University and college faculty positions
- Assistant Director of Environmental Field Station
- Conducted small mammal field research and public health vector surveys

**CREDENTIALS**

B.S. 1967 Portland State College, Portland, Oregon  
Major: Biology

Ph. D. 1972 University of Arizona, Tucson, Arizona  
Major: Vertebrate Zoology; Minor: Physiology

**PROFESSIONAL AFFILIATIONS/APPOINTMENTS**

Society of Environmental Toxicology and Chemistry (SETAC) (1979-present - charter member)

American Society of Mammalogy (1968-present)

American Association for the Advancement of Science (AAAS) (1971-present)

Sigma Xi (1969-present)

American Society for Testing and Materials (ASTM) (1980-1990): Committee E-47 on Biological Effects &

Environmental Fate (charter member; vice chairman, 1980-1988) and Sub-Committee E-47.04 on Wildlife Toxicology (chairman, 1982-1990)

## **PROJECT EXPERIENCE**

- Experience as ecotoxicologist and endangered species consultant with CSI. Diverse experience within the U. S. Environmental Protection Agency in risk assessment of pesticides and industrial chemicals, ecotoxicological research, test method development, program development, contract management, endangered species project management, technical support for litigation and hearings. Prior experience as faculty member, in field biology, and in Field Station management.
- As consulting ecotoxicologist, provide expert advice, review and other input on endangered species biology and pesticide risks for projects with CSI clients. Utilize lengthy career experience, knowledge of EPA and EPA requirements, history, and contacts both within and outside of EPA to provide assistance in this area.
- As a risk assessor, developed numerous ecological assessments of pesticides and industrial chemicals under FIFRA and TSCA, utilizing toxicological and environmental fate and transport data along with knowledge of agricultural applications and locations.
- In the area of test method development, authored TSCA test guidelines and support documents for avian acute and chronic tests, and for an aquatic and invertebrate test. Primary author of OECD's initial avian acute and chronic test methods. Authored FIFRA test guideline on wild mammal testing and co-authored Terrestrial Field Studies Guidance document. Chaired ASTM Wildlife Toxicology subcommittee through development of avian toxicology tests. Also authored TSCA Good Laboratory Practice Guidelines and served on OECD Expert Group for GLPs. In all methods development, worked widely with other experts, registrants, academia, and the general public to ensure methods were technically correct, practical, and would provide useful information.
- In the area of program development, participated in early development of OPP guidelines and risk assessment process. Played key role in development of TSCA guidelines and risk assessment process. Championed the development of EPA's Wildlife Toxicology Program in the Office of Research and Development, and provided most of the initial research topics. Was primary developer of OPP's revised Endangered Species Protection Program, coordinating efforts widely within EPA, with other federal agencies, states, pesticide registrants, and other entities.
- As Endangered Species Protection Program project manager, led the program development, promoted the program publicly through speeches and written material, developed expertise on T&E species and provided advice to management, risk assessors, and others, developed ESA section 7 consultation requests for agency actions..
- In support of EPA activities involving litigation and hearings, served as expert witness in pesticide cancellation hearings, led the resolution of Wyoming toad issues to reach settlement avoiding litigation, and following court findings, authored 21 salmon-pesticide analyses and requests for consultation, 2 analyses of effects of 11 pesticides on forest plants and co-authored another 12 salmon-pesticide analyses.
- As teacher-trainer, had six years of college faculty experience teaching laboratory and field courses on various topics of vertebrate zoology, assisted in field station development and management including

curriculum development and hiring of faculty, taught short courses on field testing and endangered species topics in conjunction with SETAC meetings, provided EPA training for laboratory auditors, risk assessors, and endangered species staff.

## **PROFESSIONAL EMPLOYMENT**

### **Consultant/ Environmental Toxicologist (2004 - Present) Compliance Services International (CSI) - Lakewood, WA**

Provides expert assistance on endangered species issues with respect to pesticides, including locations, habitats, food habits, and pesticide use associations and risk. Provides advice on EPA requirements and processes. Provides support for risk assessment of pesticides on non-target species. Reviews technical materials for adequacy and applicability to regulatory programs.

### **U. S Environmental Protection Agency, Office of Pesticides, Prevention, and Toxics (1977-2004) Various Scientific & Managerial Positions:**

#### **Senior Scientist, Endangered Species Protection Program, Office of Pesticide Programs (1999-2004) U. S. EPA, Washington, DC**

Served as "National Expert" on endangered species and pesticides. Represented the Agency on pesticide-endangered species matters in meetings with States, other Federal agencies (especially FWS and USDA), pesticide user groups, environmental groups, scientific societies, and other external groups. Provided authoritative risk assessments in response to court orders on salmon and pesticides and on forestry use herbicides. Developed and maintained technical information on endangered species and pesticide associations. Received 5 EPA bronze medals for commendable service and OPP Honor Award for Program Excellence.

#### **Project Manager, Endangered Species Protection Program, Office of Pesticide Programs (1987-1999) U. S. EPA, Washington, DC**

Served as Project Manager providing day-to-day management of all aspects of the project, including program development, briefings of senior EPA and other federal officials, endangered species-pesticides risk assessments, contract management and budgeting, economic impact analyses, information development and dissemination, and interagency efforts. Supervised endangered species team, including hiring and evaluations, program development, species-specific protection strategies, development of endangered species profiles and county bulletins, and extensive data bases and other information. Developed concept of "state-initiated plans" for protection of T&E species, concept of site- and species-specific assessments for T&E species, incorporation of threshold effect levels, timing, climatic, and edaphic factors into assessments. Received EPA gold medal for exceptional service for resolving Wyoming toad issues without litigation, and "sustained superior performance" award as project manager.

#### **Ecotoxicologist and Risk Assessor, Environmental Fate & Effects Division, Office of Pesticide Programs (1985-1987), U. S. EPA, Washington, DC**

Developed ecological effects risk assessments for pesticide registration, reregistration, and special review actions, particularly those involving controversial and sensitive actions. Served as Branch lead for small

mammal ecology and toxicology and for avian reproductive toxicology, including development and/or revision of test guidelines. Played key role in developing terrestrial field study guidelines, co-authored Field Studies Guidance Document, and taught SETAC short course on field studies. Served as expert witness for acute avian toxicity in hearings on diazinon. Developed ecological effects portions of OPP's Good Laboratory Practices (GLPs). Proposed and coordinated research to develop new ecotoxicological test methods and data to facilitate risk assessments. Active participant in scientific societies, presenting papers, chairing sessions, serving on steering committees, and as committee and subcommittee officer in ASTM.

**Ecotoxicologist and Reviewer, Health & Environmental Review Division, Office of Toxic Substances (1979-1985), U. S. EPA, Washington, DC**

Served as Branch expert on avian and mammalian ecotoxicology for developing the Toxic Substances Control Act (TSCA) program to assess environmental risks of industrial chemicals. Developed test standards, support documents and Good Laboratory Practices (GLPs) for use both under TSCA and for member countries of the Organization for Economic Cooperation and Development (OECD). Served as staff lead and was major contributor to testing and assessment schemes for use in evaluating impacts of industrial chemicals on the environment. Proposed, planned, and managed extramural research projects to develop various elements of TSCA program; served as project or task officer on numerous extramural contracts. Successfully promoted development of EPA's Wildlife Toxicology Program in Corvallis, OR. Acted as Toxicology Team supervisor for several extended periods of time.

Recognized nationally and internationally as a leader in terrestrial ecotoxicology, participating in workshops, meetings, symposia, etc., presenting papers, chairing sessions, and serving on committees and as committee officer. Assisted in the formation of the Society for Environmental Toxicology and Chemistry; charter member. Co-chaired first U. S. national wildlife toxicology workshop sponsored by SETAC. Invited session keynote speaker at first European Symposium on Terrestrial Toxicology in Les Arcs, France.

**Fish and Wildlife Biologist, Environmental Effects Branch, Office of Pesticide Programs (1977-1979) U. S. EPA, Washington, DC**

Served as staff risk assessor for pesticide actions under FIFRA. Analyzed and validated ecological effects toxicity data, determined use classification, conducted statistical analyses, conducted literature searches, developed portions of criteria and guidelines, responded to public comment, identified and recommended new research needs, and developed experimental test protocols. Developed and maintained contacts with agricultural interests, pesticide manufacturers, and other Federal and State agencies, especially in areas relating to endangered species, test methodologies, and recent research. Conducted laboratory audits and trained EPA ecotoxicological auditors in technical aspects of studies. Trained new reviewers in procedures for analyzing fish and wildlife toxicity data and risk assessments.

**Lecturer, Biology Department (1976-1977)  
Linn-Benton Community College, Albany, OR**

Taught General Zoology course; prepared lectures and laboratory sessions; supervised student projects.

**Lecturer, Biology Department, (1975-1976)**  
**Lewis and Clark College, Portland, OR**

Taught Vertebrate Natural History course as sabbatical replacement. Prepared lectures and laboratory sessions; led field trips, supervised special projects.

**Assistant Director (1973-1975)**  
**Malheur Environmental Field Station, Burns, OR**

Assisted the director in all phases of Field Station operations: supervised student employees, prepared budgets, participated in curriculum development and long-range planning. Taught field courses in vertebrate biology, mammalogy, and natural history. Conducted field research on herbicides; developed field guides and led field trips; traveled extensively in the Pacific Northwest, presenting numerous scientific and promotional lectures for the field station; worked with educational organizations, environmental groups, and local citizens to ensure harmonious relationships.

**Assistant Professor, Department of Entomology Fisheries and Wildlife (1971-1973)**  
**University of Minnesota, St. Paul, MN**

Taught mammalogy courses; prepared lectures and laboratory sessions; led field trips, supervised special projects; led graduate student seminars; curated mammal teaching collection. Conducted research and published results in scientific journals; prepared successful research grant proposal; reviewer for scientific journals and National Science Foundation. Supervised graduate teaching assistants.

**Biologist (summers 1968, 1969)**  
**Oregon Department of Health, Portland, OR**

Conducted public health surveys throughout Oregon, collecting ectoparasites for analysis of disease vectors.

**PUBLICATIONS**

**Print Publications with attributed authorship:**

Forbes, R. B. and **L. W. Turner**. 1972. Notes on two litters of Townsend's chipmunks. *Journal of Mammalogy*, 53(2): 355-359.

**Turner, L. W.** 1972. Habitat differences between *Spermophilus beldingi* and *Spermophilus columbianus* in Oregon. *Journal of Mammalogy*, 53(4): 914-917.

**Turner, L. W.** 1973. Vocal and escape responses of *Spermophilus beldingi* to predators. *Journal of Mammalogy*, 54(4): 990-993.

Nadler, C. F., **L. W. Turner**, R. S. Hoffman, and L. Deutsch. 1973. Chromosomes and giemsa-bands of the Idaho spotted ground squirrel, *Spermophilus brunneus* (Howell). *Experientia*, 29: 893-894.

**Turner, L. W.** and S. A. Caron. 1973. (Review of) Time to Cry Wolf! by Lester J. McCann. *Journal of Wildlife Management*, 37(4): 594-595.

**Turner, L. W.** 1981. Development of an avian dietary LC50 test for use under the Toxic Substances Control Act. *in* D. W. Lamb and E. E. Kenaga (eds.) Avian and Mammalian Wildlife Toxicology: Second Conference. ASTM STP 757. American Society for Testing and Materials, Philadelphia.

McCrary, J. K., D. E. Johnson, and **L. W. Turner**. 1985. Volatility of ten priority pollutants from fortified avian test diets. *Bulletin of Environmental Contamination and Toxicology*, 34: 634-644.

**Turner, L. W.** 1986. Relationships between laboratory and field data in terrestrial ecotoxicology. *in* Actes du Symposium International sur l'ecotoxicologie terrestre. Societe d'ecotoxicologie fondamentale et appliquee, Villeneuve-D'Ascq, France.

**Turner, L. W.** 1986. The case of the missing data: evaluating the aquatic impact of new chemicals. "Preprint extended abstract" for presentation in the Risk Management Symposium of the American Chemical Society (Division of Environmental Chemistry) National meeting, April, 1986, New York.

Fite, E. C., **L. W. Turner**, N. J. Cook, and C. Stunkard. 1988. Guidance document for conducting terrestrial field studies. EPA 540/09-88-109, U. S. Environmental Protection Agency, Washington, D. C.

**Turner, L. W.** 1988. EPA's implementation of the Endangered Species Act under FIFRA. *in* Proceedings of a symposium on endangered and sensitive species of the San Joaquin Valley, December 1987. California State University, Bakersfield, CA. (similar papers published in proceedings of various society and association meetings, including the Utah Mosquito Control Association, Colorado Crop Protection Institute)

**Turner, L. W.** 1990. Objectives of terrestrial field studies. *in* Somerville, L. (ed.), Proceedings of an International Workshop: Terrestrial Field Testing of Pesticides - European Initiative, October, 1988. Cambridge, United Kingdom.

**Turner, L. W.** 1993. Overview of the Environmental Protection Agency's Endangered Species Protection Program. pp. 2-5 *in* Messmer, T. A. (ed.), Proceedings of the Symposium: Endangered Species "Pesticide" Protection Programs. August, 1993. Utah State University, Logan, Utah.

**Turner, L. W.** 1993. Regulation of Pesticides: Current Status and Trends. pp. 50-53 *in* Messmer, T. A. (ed.), Proceedings of the Symposium: Endangered Species "Pesticide" Protection Programs. August, 1993. Utah State University, Logan, Utah.

**Doctoral Dissertation:**

Autecology of the Belding ground squirrel in Oregon. University of Arizona, 1971

**Print publications with unattributed (organizational) authorship:**

Avian single-dose oral acute, Avian dietary subacute, Avian reproductive effects, and Aquatic invertebrate (*Gammarus*) test guidelines and support documents for EPA's Office of Toxic Substances, 1981-1982.

Avian single-dose oral acute, Avian dietary subacute, and Avian reproductive effects test guidelines for the Organization for Economic Cooperation and Development (OECD), 1983.

## **On-line publications:**

Sole author for 21 court-ordered individual analyses of pesticides effects on threatened and endangered salmon and steelhead; co-author on 12 additional analyses; May 2002 – December, 2003.

Sole author for two court-ordered analyses on effects of 11 pesticides on forestry plants; Jan 2003.

All posted on the internet at <http://www.epa.gov/oppfead1/endorsement/effects/>

## **PRESENTATIONS**

### **General**

Approximately 30 technical papers presented at meetings of various scientific societies and at workshops (1968-present).

Approximately 50 research and promotional presentations to college and university students and faculty, civic organizations, environmental groups and others, while Assistant Director of Malheur Environmental Field Station (1973-76).

Over 100 presentations to scientific societies, state officials, pesticide user organizations, environmental groups, etc. on OPP's Endangered Species Protection Program (1987-2004).

### **Highlights**

Relationships between laboratory and field data in terrestrial ecotoxicology. Invited session keynote speaker, presented at the First European Symposium on Terrestrial Ecotoxicology, Les Arcs, France, December 12-14, 1984.

The case of the missing data: evaluating the aquatic impact of new chemicals. Invited speaker, presented in a session honoring Eugene Kenaga, as part of the Risk Management Symposium of the American Chemical Society (Division of Environmental Chemistry) National meeting, April, 1986, New York.

Avian Field Testing ("Short Course"). Invited Instructor, presented at Society of Environmental Toxicology and Chemistry annual meeting, November, 1987.

Objectives of Terrestrial Field Studies. Invited speaker, presented at International Workshop on Terrestrial Field Testing of Pesticides, Selwyn College, Cambridge, UK, September 12-15, 1988.

Endangered Species and Pesticide Protection: a Short Course for [state] Program managers. University of Florida Cooperative Extension Service, Orlando, Florida, presented September 1-5 and September 22-26, 1992.

Protecting Endangered Species from Risks of Pesticides and other Chemicals. Invited instructor, presented at SETAC Annual Meeting, November, 1994 and November, 1996, and at SETAC NorCal Chapter meeting, June, 1995.

## **ADDITIONAL TRAINING**

1996 Work Group Leadership, EPA  
1994 Seminar for New Managers, OPM  
1993 Total Quality Management, EPA  
1992 Presentation Power, EPA  
1991 Project Officer Course, EPA  
1990 Contract Administration, EPA  
1984 Multivariate Statistics, EPA  
1982 Introduction to Supervision, OPM  
1961-62 Pharmacy School, U. S. Navy  
1960 Hospital Corpsman School, U. S. Navy  
1978-2003 Numerous one-day training on various personnel subjects, team building, communications, etc