

# *CURRICULUM VITAE*

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## **EDUCATION**

### **M.S., Applied Ecology and Conservation Biology**

Frostburg State University, Frostburg, MD  
Graduated - August 1997: GPA 3.83/4.0

### **B.S., Biology/Ecology (minor: Environmental Studies)**

St. Cloud State University, St. Cloud, MN  
Graduated - May 1994: GPA 3.62/4.0

## **TEACHING EXPERIENCE**

### **Graduate Teaching Assistant**, Frostburg State University, Spring 1995 - Spring 1997.

- General Biology 1 labs (2 sections).
- Human Biology and the Environment lecture/labs (2 sections per semester).
- Wrote all lectures (30-45 min.), quizzes, and practical questions. Graded quizzes, practicals, papers, and lab reports.

## **RESEARCH EXPERIENCE**

### **Research Technician**, Bent Creek Germplasm Repository @ The North Carolina Arboretum.

- See Work Experience below.

### **Graduate Research**, Frostburg State University, Fall 1994 - Summer 1997.

Thesis title: Nodulation of *Trifolium pratense* in Fluidized Bed Ash Amended Strip Mine Reclamation Soil.

- Developed experimental design based upon pilot study conducted in a greenhouse. Constructed growth chamber. Observed growth of plants and their associated root nodules in varying mixtures of fluidized bed ash/strip mine reclamation soil. Ran an acetylene reduction assay on nodules using a gas chromatograph. Analyzed data for associations between nodule success and plant morphological features. Prepared manuscript for publication.

### **Independent Research**, Frostburg State University.

- Analyzed existing habitat databases using PC ARC/INFO(GIS). Determined suitable areas for porcupine introductions in Garrett County, Maryland.
- Prepared medium, performed sterilization procedures and transfers for plant tissue culture.
- Prepared isozymes from rare Sculpins collected in western Maryland streams and performed starch gel electrophoresis for comparison with existing genetic information.

## **WORK EXPERIENCE**

### **Research Technician**, Bent Creek Germplasm Repository @ The North Carolina Arboretum, September 2009 – present.

- Collection of seeds and voucher specimens for long term storage and research. Includes taxa identifications, seed cleaning and processing for storage at -20°C in vacuum sealed pouches.
- Mounting of voucher specimens for the herbarium. Includes accessioning and organizing the collection of vouchers.
- Conducting germination rate and seedling survival studies for medicinal and rare plant taxa.
- Manage and organize the Center for Plant Conservation living collections.
- Maintenance of controlled pollination cages for medicinal plant taxa.
- Management of 8 – 10 volunteers in the lab and the field.

- Preparation of plant extracts for research collaborations.
- Maintenance of equipment, supplies, and related research materials.
- Assisting the germplasm director with data collection and interpretation, research needs, and database management.

**Environmental Biologist/Botanist, and Owner, Environmental Assessment and Planning, Nov. 1999 – September 2009.**

- Protected species surveys - survey for any protected/sensitive species and report on findings (Botanical emphasis).
- Baseline inventories - terrestrial and aquatic baseline biological/chemical surveys for conservation purposes. Includes master plant species list, terrestrial plant community delineation and mapping, photographic boundary survey, digital photography, and benthic macroinvertebrate/chemical survey of on-site streams. Includes a general assessment of health, significant species/habitat/communities, and conservation value. (Over 4,000 acres conserved).
- Natural Heritage Inventories – Botanist/Plant Community Ecologist.
- Site assessments – vegetation and wetland surveys – preliminary surveys.
- Wetland delineations – field determination of Section 404/401 wetland boundaries (based upon soils, vegetation, and hydrology), stream jurisdiction and importance determination (several hundred wetland sites surveyed/delineated).
- USACE Jurisdictional Determination Form – prepare JD forms and supplemental information for submittal to USACE.
- Stream enhancement/stabilization – Initial baseline assessment/inventory, plan design, report writing, coordination with state and federal agency personnel, oversight during construction, and monitoring of project success.

**Ecologist/Environmental Biologist, Habitat Assessment and Restoration Program, 301 McCullough Drive, 4th Floor, Charlotte, NC 28262, Nov. 1997 – Nov. 1999.**

- Native plant identification, collection, herbarium specimen preparation and accessioning (UNC-Charlotte herbarium).
- Herpetological identification, basic macroinvertebrate identification for Natural Heritage Inventories.
- Suther prairie maintenance including prescribed burning.
- Bioengineering (stream bank and wetland restoration, creation, enhancement), endangered species surveys, prairie preservation/restoration, stream water quality surveys (chemistry, fish and macroinvertebrate diversity), general habitat assessment -- pre-urban development, herbarium preparation and maintenance.
- Wetland surveys and delineations – field determination of wetland boundaries (based upon soils, vegetation, and hydrology), stream jurisdiction and importance determination.
- Upland depression survey – Survey of herpetofauna and macroinvertebrate communities for upland depressions in Cabarrus County. Completed for the Cabarrus Natural Heritage Inventory.
- Project leader/field investigator - Mtn. Island Lake Project and Southfork Holdings project: Proposed, designed and implemented data collection for aquatic and terrestrial habitat quality. Sampled streams for physical, chemical and macroinvertebrate assessments. Sampled plant communities for classification and delineation. Prepared maps, and reports for Catawba Lands Conservancy final report.

**Software Consultant, Andersen Sales Co. -- fly fishing equipment, July 1997 - Nov. 1997.**

- Setup templates for spreadsheets, custom documents, contact managers. Customized software/hardware to optimize time and ease of use (per users needs). Conducted training for internet usage, general file management, basic computer skills.

**Program Support – Greenhouse Curator and Computer Assistant, Frostburg State University, 1995 – 1997**

- Maintained the biology department greenhouse. Including conducting various experiments to develop a pilot study for my thesis.

- Developed computer template of graduate thesis (traditional and journal format). Software and hardware troubleshooting for biology department computers.

**Forest Health Monitoring (EPA/USFS/MN DNR)**, MN DNR, Grand Rapids, MN,  
May 1994 - Sept. 1994

- Served as crew leader (4 crew members), organizing daily field data collection, sampled a diversity of forests in Northern MN for tree species identification, diversity, health, understory coverage, etc. Data was compiled for a national forest health assessment. Located sites via aerial photo interpretation and previous site maps.

## **SKILLS**

**Field Work:** plant species (woody and herbaceous) identification, mammal species identification, basic benthic macroinvertebrate identification, vegetation sampling, plant community surveys and delineation, mammal trapping and radio tracking, fish electro-shocking, benthic macroinvertebrate sampling, soil analysis, wetland & stream delineations, stream hydrology assessments for restoration design, water quality analysis, bio-engineering, aerial photo interpretation, orienteering, GPS geo-referencing, ability to work alone or in teams and under harsh environmental conditions.

**Laboratory Work:** assessment of plant morphological features, general water quality analysis (pH, D.O., conductivity, salinity, acidity, nutrient analyses, etc.), soil analysis (pH, texture determination, organic matter content, etc.), gas chromatography, starch gel electrophoresis, slide staining and microscopy, plant tissue culture (stage 1 - 4), plant extract preparation (plant material grinding, rotary evaporation with various solvents, lyophilization, preparation for long term storage), herbarium voucher preparation (identification, mounting, accessioning), seed cleaning and storage (manual and automated seed cleaning and vacuum sealing for freezing).

**Computer Skills: Macintosh:** word processing, spreadsheets.

**IBM:** Windows 3.1, 95, 98, NT, XP; DOS, BASIC, dBase-IV, Microsoft Word, Excel, PowerPoint, Publisher; Netscape, ACT, Minitab, SAS, Statistica, WinXSPRO, PC-ORD, BIOSYS, Photoshop, Garmin GPS software, and many other IBM platform programs.

**GIS - ARC/INFO, ARC/VIEW, MIPS, AUTOCAD.** GIS building, editing, querying, and output.

- Familiar with most current hardware/software configurations, experienced in image capturing systems (microscopy (CCD camera), scanning, and digital photography).

**General Scientific Skills:** experimental design, scientific writing, data analysis and interpretation, and ability to work with a diversity of people in research, professional, and/or teaching environments.

## **PROFESSIONAL/ACADEMIC PRESENTATIONS AND PUBLICATIONS**

Levi, J. A., and K. Caldwell. Accommodating ecology and natural resource protection laws during the construction process. Health, Safety, and Welfare Issues for Design Professionals. HalfMoon Seminars, Asheville, NC. December 2007.

Dabydeen, S., and J. A. Levi. 1998. Introduced plant species in Maryland. The Maryland Naturalist 42(3-4):35-51.

Levi, J. A. 1997. Nodulation of *Trifolium pratense* in fluidized bed ash amended strip mine reclamation soil. Thesis: Frostburg State University, Frostburg, MD.

Levi, J. A. and W. J. Pegg. Nodulation of *Trifolium pratense* in fluidized bed ash amended strip mine reclamation soil: *in vitro*. ASB, Furman Univ., Greenville, SC. April 1997.

Levi, J. A. and W. J. Pegg. Nodulation of *Trifolium pratense* in fluidized bed ash amended strip mine reclamation soil. ASB, Georgia Southern Univ., Statesboro, GA. April 1996.