

September 26, 2011

RDI's accomplishments cover the complete spectrum of Visual Resource Management:

### **1. Forest Management Strategies, Policy, Practices, Guidelines and Standards**

RDI has conducted numerous forest planning projects ranging from Provincial strategies through to guidelines and standards. These include a complete Visual Landscape System (VLS) for the Cumulative Environmental Management Association in Alberta in 2003, VQO re-appraisal of two complete TFL's (TFL 25 and TFL 38). Ken Fairhurst has sat on several planning tables such as the Sea-to-Sky Local Resource Use Plan and Management Plans, and the Meares Island Planning Team. Ken participated in the original development of the VLM program in BC.

### **2. Visual Landscape Systems Development**

RDI developed a complete Visual Landscape System (VLS) for the Cumulative Environmental Management Association in Alberta in 2003. The VLS is a comprehensive inventory, planning and design process for visual resources within a region that offers guidance to resource development, integration, and cumulative effects to meet visual desired quality targets. The VLS was designed for forestry, mining, energy, and other types of resource planning and development. A precursor of the VLS was developed in 2001 for presentation to the Western Forestry and Conservation Association held in Portland, Oregon.

### **3. Visual Landscape Inventory**

RDI has conducted several complete highway corridor inventories including the 2006 Sea-to-Sky Frontcountry Visual Landscape Inventory Update which ran from Horseshoe Bay in West Vancouver through Squamish, Whistler and Pemberton to Joffre Lakes and westward along the Lillooet River. Full ArcGIS mapping was provided as a project output. RDI also conducted the VLI for the entire Chilliwack Forest District, and has participated in similar inventories throughout Vancouver Island, Chilco-Chilcotin Rivers, Central Coast waterways, Inside Passage waterway, northern Gulf Islands waterways,

### **4. Integrated Visual Design / Total Resource Planning**

The procedure examines biophysical, economic and engineering constraints and opportunities, develops comprehensive resource conforming to the landscape, sets schedules, and provides the needed data to calculate the long-term economic flows while meeting visual quality objectives. RDI has conducted many of these projects following Ministry procedures ranging in scale from single landforms to entire travel corridors. These include the 2011 IVD for VSU 512 (Lake Errock) for Tamihi Logging Co. Ltd., the 2010 IVD for Interfor's Frederick Arm operating area, the 2010 Foghorn IVD for BCTS Kamloops, and the 2007 Nadina Lake Integrated Visual Design Plan produced for Houston Forest Products in a mountain pine beetle affected scenic area.

### **5. Visual Impact Assessment / Environmental Impact Assessment**

Visual impact assessments are structured analyses of the effects of land-use alteration in the scenic landscape. Photo-realistic computer-generated visual simulations are produced from key viewpoints; impact is measured by verbal definition, design criteria, and degree of measurable alteration in perspective or photo view. Design alternatives are developed as necessary to achieve maximal harvest volumes while maintaining visual quality objectives. RDI has conducted a great number of these projects throughout British Columbia, including, most recently, the 2011 VIA for Interfor's Rendonda Island operating area (Red 12A and Red 24), and the 2010 VIA for Interfor's Frederick Arm operating area. Several of these are used as case studies in Forestry 491 at the Faculty of Forestry, UBC, and are available on-line in the course

website, [http://faculty.forestry.ubc.ca/sheppard/frst491/FRST491\\_2008.htm](http://faculty.forestry.ubc.ca/sheppard/frst491/FRST491_2008.htm) under the Case Studies section.

## **6. Information and Technology Transfer**

Ken Fairhurst routinely conducts custom training courses locally and internationally which emphasize his commitment to excellence in all aspects of visual resource management standards and practices.

- Co-instructor, Forestry 491 Visualization and Forest Design, Winter Sessions 2007 and 2008. Ken was also the GIS lab instructor for the course. Dep't. Forest Resources Management, Faculty of Forestry, University of British Columbia [http://faculty.forestry.ubc.ca/sheppard/frst491/FRST491\\_2008.htm](http://faculty.forestry.ubc.ca/sheppard/frst491/FRST491_2008.htm)
- Co-presenter, American Society of Landscape Architects Annual Meeting, San Francisco, October 8, 2007. Session C2: Visual Planning Tools and Processes: New Applications.
- Developer and presenter, Workshop on Using Visual Nature Studio (2006). IUFRO International Conference on Patterns and Processes in Forest Landscapes - Consequences of Human Management in Bari, Italy, September, 2006.
- Organizer and Moderator, Forum on Visual Resource Management and the Practitioner, International Symposium on Society and Resource Management, Vancouver, BC, 2006.
- Developer and Instructor, RENR 5781 - Visual Landscape Management (2002; 2003). British Columbia Institute of Technology. (2-day comprehensive instructional course development and delivery).
- Workshop and guest lecturer: visualization of silviculture treatments to reduce fire hazards in northern Arizona (2001). Coconino National Forest and Northern Arizona University.
- Developer and Instructor, A practical guide for visually effective design of timber harvesting. A half-day workshop for the Western Forestry and Conservation Association (2001). Olympia, WA. September 24, 2001.
- Taught Ministry VIA and Landscape Design training courses in several Forest Districts in 2000.

## **7. GIS, 3-D Visualization and Animation Applications**

RDI has produced 3-D visual simulations and animations covering a wide range of topics – including independent power producers' hydro-electric developments and transmission lines such as the Skookum Power Project (Run of River Power, 2011), highways, bridges, and bridge settings (e.g., the Culliton Bridge Animation for BC Ministry of Highways), and oil sands mining and restoration in Alberta. The Suncor project in Alberta, completed in 2003, provided a look at revegetation of the Millennium oil sands mine landform structures over the course of 70 years, seen in animated fashion while cruising up the Athabasca River. The Canadian Natural Resources Horizons Oil Sands project looked at landform construction and closure/vegetation, and facility development in northern Alberta. An animation was also prepared showing the intake structure from the river. A forest health simulation project for the USDA Forest Service Coconino National Forest in Arizona assessed treatment options as they would be experienced from the Interstate Highway. An animated low elevation fly-through was produced for the project. The controversial project won wide public acceptance based on the simulations (<http://www.fs.fed.us/r3/coconino/nepa/2003/new-kachina-rod-feis/14-app-d-feis.pdf>). RDI also produced visualizations of harvesting and road options for Scotia Pacific Lumber Company, Scotia, CA in preparation for hearings before the State Water Quality Control Board, June, 2001. An animated low elevation fly-through was produced for the project. In all projects ArcGIS is used in conjunction with Visual Nature Studio to provide full mapping, simulation and analysis of projects.

## **8. Forest Research**

Ken Fairhurst and RDI are providing continuing and significant contributions to the discipline of Forest Resource Planning and Management. For his Ph. D dissertation, Ken developed a tool to guide the location, size, pattern, and shape of resource development and/or protection. Called GEOptics Landscape Apparency, it is based on the cumulative angle of viewing towards each land plane seen from multiple viewpoints along travel corridors. GEOptics will simplify and improve the visual management and planning processes by providing a detailed GIS output layer of quantified landscape risk, and will facilitate design of operations with a greater chance of meeting Visual Quality Objectives. Ken's Ph.D. dissertation is available on-line at the UBC library (electronic download: <http://hdl.handle.net/2429/28006>).

**9. Professional Reviews, Audits, and Investigations**

- Compliance and Enforcement Issue - independent analysis - Sunshine Coast Forest District, 2009.
- Peer reviews of VIAs - Western Forest Products, Timberwest , and International Forest Products.

**Examples of Recent Projects**

1. Visual Resource (Landscape) Inventory - RDI is accomplished at fully conducting major VLIs since 1996, when RDI conducted the first VLI in the Province to apply new Ministry standards for the entire Chilliwack Forest District. RDI conducted the Sea-to-Sky Frontcountry VLI for the Squamish Forest District in 2006.
2. VLIs underway in 2011 by RDI are:
  - a. Ominica: Nechako River and Cripple and Otterson Lakes;
  - b. Cariboo: Highway 97, Whiffle Lake, Keno Lake, Hen Ingram Lake, Jacques Lake, Horsefly Lake, Crooked Lake, Bosk Lake, Horsefly River Road, Likely Road, 100 Mile House - Horsefly Road, Elbow Lake, Tisdall Lake, McKinley Lake, Moffatt Lake;
  - c. Okanagan-Shuswap: Highways 97A and B.
3. GIS Visibility Analysis - RDI routinely uses ArcGIS visibility (cumulative viewshed) analysis in all VLIs (see 1), VIAs (see 4), and IVDs (see 7).
4. Visual Impact Assessments - Historically, RDI's first VIAs were produced in 1996. Under a multi-year contract with BC Timber Sales, RDI is conducting VIAs this year along Highway and along Agate Road near Adams Lake. Others include Western Forest Products' Lois Lake VIAs for ST-205 in 2008 and ST-203-261 in 2010, Interfor's Frederick Arm VIA 2011; Interfor's Rendonda Island Red 12 and 24A VIA in 2011.
  - a. RDI is frequently called upon to provide professional peer reviews of VIAs, such as for Western Forest Products at Lois Lake in 2011, Timberwest (2010), and International Forest Products at Booker Lagoon (2008), and Greenway Sound and Stuart Island in 2011.
5. Forest Landscape Design - following the design criteria provided in the Visual Landscape Design Training Manual, RDI applies its expert understanding of design in all VIAs (see 4), IVDs (see 7), and visual landscape training/education courses (see 9).
6. Visual Simulation - RDI routinely uses state of the art Visual Nature Studio 3-D modelling together with ArcGIS 10. As expert users of the tools, simulations are incorporated in all VIAs (see 4) and IVDs (see 7). RDI also trains clients in software applications (see 9).
7. Integrated Visual Design - RDI is accomplished at IVD preparation following the Ministry's Integrated Visual Design Procedures and Standards, such as Tamihi Logging's Lake Errock VSU 512 IVD in 2011; Interfor's Frederick Arm IVD in 2010, BC Timber Sales' Foghorn IVD in 2010, and West Fraser's Nadina Lake IVD in 2007. Notably, RDI prepared its first IVD in 1999 for Western Forest Products' TFL 24.
8. Viewpoint Photography - RDI routinely uses state-of-the-art geo-positioned cameras and photographic skills for all VLIs (see 1) and IVDs (see 7).

9. Visual Landscape Training - K.B. Fairhurst co-taught UBC Faculty of Forestry's Visualization and Forest Design (FRST 491) course for two years in 2007 and 2008, teaching and applying Ministry design guidelines to student projects. He was GIS/visualization instructor for the course for 5 years. RDI regularly conducts 2-day training courses in Visual Nature Studio aimed specifically at integrating advanced VIA simulation techniques and visual design considerations for forest industry clients, such as for West Fraser Mills and Chartwell Forest Consultants in 2011, TDB Consultants in 2009, and Tyhee Forestry in 2008. Ken has also presented Visual Design topics at international conferences in Europe, Australia, and North America. Ken developed and conducted 2-day Visual Design training course at BCIT in 2002. RDI earlier developed and delivered the VIA Training Course for the Ministry's Vancouver Forest Region in 2000. Having a long and dedicated history of involvement in VLM, Ken was a direct participant in the development of the Provincial Forest Landscape Management policy and procedures while with the Ministry of Forests, 1980-1985; 1986-1996.

The RDI website provides more information and examples of our work. It can be found at [www.rdi3d.com](http://www.rdi3d.com).

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## **Résumé**

### **K.B. Fairhurst, Ph.D., R.P.F.**

#### **Academic History**

**Ph.D. in Forestry, 2010**

Univ. Brit. Col., Forest Resources Management

*Research and Dissertation on GEOptics Visual Landscape Apparency*

#### **Professional History**

**May, 1996 to Present**

**Professional Consultant / Co-owner**

**RDI Resource Design Inc.**

**Vancouver BC Canada**

Forest Resource Planning / Integrated Visual Design

**2007 to 2008**

**Instructor, University of British Columbia**

Department of Forest Resources Management, Faculty of Forestry

**1985 to 1996**

**1980 to 1983**

**Visual Landscape Specialist, Vancouver Forest Region**

British Columbia Ministry of Forests

**1984 to 1985**

**Landscape and Timber Operations Forester**

Alberta Forest Service, Alberta Canada

**1983 to 1988**

**Consulting Services in Urban Forestry**

**Outdoor Recreation, and Visual Resource Management  
in British Columbia and Alberta**

#### **Professional Associations**

Association of B.C. Professional Foresters

Consulting Foresters of British Columbia

Collaborative for Advanced Landscape Planning, Univ. Brit. Col.

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