Prepared for RUBY LAKE LAGOON NATURE RESERVE SOCIETY

Interpretive Display Research for the Iris Griffith Field Studies and Interpretive Centre

Summary of Findings
by Catherine J. Johnson

This summary provides preliminary information on exhibit and display possibilities for the Iris Griffith Field Studies and Interpretive Centre. The information was gathered from thirty-three sources which included museums; science centres; parks; exhibit designers, builders, and artists; schools and outdoor education facilities; ecology centres and conservation areas; a wetlands consultancy; naturalists; and the Ruby Lake Lagoon Nature Reserve Society board members and education committee (see Appendix 1).

Ten main themes emerged from the research either by their reoccurrence or by their appropriateness to the field centre's needs as determined by the board of directors and/or education committee members.

Interactive Displays

Effective displays are those that engage the visitor in a personal way, or in a fun or pleasurable way. Giving the visitor a sense of discovery is an important element, even if it is as simple as pullout drawers full of collection items as part of a larger exhibit (popular item in many museums). If computer components are used, they need to have specialized programs distinct to the centre's themes and not generalized software that can be seen elsewhere. Computer programs can have layers built in to address different educational levels (games, video clips, mini-lectures, etc).

Games are a good medium for "getting factoids into people" and the possibilities are endless; for example, board games with flip-panels for questions and answers, or with dice, on an ecological theme such as endangered native plants. The player moves around the board, landing on "action" squares that either contribute to the survival of an endangered plant, or further endanger it. A popular interactive exhibit at the Canadian Museum of Nature on animal adaptations was entitled *Animal Athletes* and engaged visitors in a series of mini-athletic pursuits—results were then compared to various other animals, and conclusions made.

Ducks Unlimited has a "nature nook" in one interpretive centre that provides binoculars, telescopes, and a remote camera that enable visitors to search for and view wildlife from the comfort of the building when weather is poor or the

boardwalks are busy (good for visitors with disabilities). Tactile exhibits in general are found to be the most popular, especially with children—at the Freeman King Visitor Centre in Goldstream Park, taxidermy displays of owls light up when a bell is sounded, and owl calls are heard at the touch of a button. In the Museum at Campbell River, dials on the historic displays can be set to different eras for video clips of what life was like then.

Displays can provide multiple levels of depth and interactivity to address the needs of a wide variety of visitors, as the Ocean Institute at Dana Point in California describes of their own exhibits:

"At the first level, all of the Sea Floor Science exhibits allow visitors to play with concepts or phenomena. This occurs in several ways: Through manipulation of tools and equipment (e.g., visitors can operate a model hydrobot and search for signs of life under the ice of Europa, jump in front of a working seafloor seismometer to see how it detects seismic waves, or operate a student-made ROV in our ocean test tank); meeting a challenge that takes them throughout the site (e.g., visitors are challenged to search for geological clues to determine where the earthquake fault runs beneath the site, visitors can participate in a site-wide "scavenger hunt" to answer questions about the animals and exhibits); manipulating the phenomena themselves (e.g., generate "tsunamis" in our 14 foot wave tank by simulating an underwater landslide then seeing how their tsunami would affect our coastline, or pile up sand underwater to investigate slope stability principles)."

This is of course the first level of *interaction*—the exhibit is also available for viewing only. The second level includes a facilitator who brings the exhibit to life through activities and investigations, inviting visitors to join in, then guiding their explorations. The exhibits can stand by themselves, but the facilitator is an integral part of a "whole experience." Yet a third level at the Ocean Institute involves daily scheduled activity tours:

"For example, visitors will have the opportunity to assemble an ROV and test it in the tank, search for microfossils in an actual ocean floor core sample and sort them and record the data, or test different theories of slope stability using special equipment designed for that purpose."

The Smithsonian Institute also offers facilitated exhibits:

"The newly renovated Discovery Room features a "Research Station," a place where visitors can elect to participate in a docent-facilitated activity with natural history objects representing one of the Museum's research collections, such as insects, fossils, or plants. Research Station activities emphasize simple observational and interpretive techniques that scientists use in their research for gathering and weighing evidence and reaching conclusions, and are designed to encourage a fascination for learning. The activity at the Research Station will change every three to six months."

And Tyrrell Museum provides visitors with access to a paleontologist who sits at a table amongst the displays, working with tools and bones while answering visitor's questions. The scientist encourages visitors to try their own hand at "specimen preparation."

The Vancouver Public Aquarium offers interactive and very tactile displays in conjunction with *Aquakits* programming:

Marine Mammals Aquakit: "Touch a sea otter pelt, eat like a baleen whale, hear the underwater sounds of killer whales, discover how marine mammals have adapted to survive in our oceans and compare yourself to a marine mammal."

Wade Into Wetlands Aquakit: "Migrate like a duck, feed like a muskrat, construct a marsh bird nest and discover how animals use wetlands as a home, hotel, restaurant and nursery."

Interactivity can also include lift-panels incorporated into a 3-D mural, portraying, for example, adverse effects on the environment by human hand—an oil slick and its consequences shown below pristine images of the ocean when a panel is lifted.

1. High-tech interactive displays

The majority of sources (with the exception of high-end museums and science centres) did not advocate high-tech exhibits, however interactive, as they break down, and they become outdated. With a small non-profit centre such as the Iris Griffith Field Studies and Interpretive Centre, broken high-tech displays could await repair for months until funding came through, and could be a disappointment for the visitor, as well as an eyesore in the display area. That said, there are high-tech interactive exhibits that may be worth considering, such as touch-screens which cost in the neighbourhood of $30,000.00–$50,000.00. If a touch screen was funded and maintained by a particular corporation for instance (and likely named for the donor), it could be a valuable, cutting-edge component of the interpretive area.

Murals and Dioramas

Murals (and dioramas with their built-in foreground components) are a traditional type of display that stays in favour and does not become outdated (with the exception of content). Children and adults enjoy the feeling of being in the scene itself, and when paired with stuffed or living displays (as in the Royal BC Museum) can be an effective way of conveying messages, history, etc. "A mural can be designed to impress, and to lead the visitor to explore." Possibilities for murals include:

- Contiguous display that tells an entire story on the same scale
- Separated panels that allow the viewer to make the leap themselves from one idea to the next within a theme

- Separated panels that allow for differing scales for different themes or topics—can go from the microscopic to the stratospheric
- Murals are permanent displays that could embody the centre's main concept or main themes and still allow space within the room for temporary or travelling exhibits
- Murals need not be painted onto the walls—it is preferable to do them in (removable) sections
- Can do murals in phases if necessary as funds become available
- Can incorporate pull-out portions, lift-panels, "discovery drawers", touch-screens, windows to the outdoors that mirror the themes, video components, text flaps, holographic imaging with view ports
- Can incorporate the interpretive area's windows into the mural—for example, place the wetlands portion of the mural on the wall facing the wetlands outside where there is a window out to the real thing
- Need artist with experience in 3-D murals or dioramas to make it a success.

- **Idea A)** A nine-foot high, 3-D mural would create quite an impact upon entering the room, and could illustrate the "zones theme" (with the flow of water and energy), incorporating all the details we'd need, based on our final concept. For example, begin at the entrance of the room and show the ocean floor and the geological processes at work there, on through marine organisms and pelagic birds, up through wetlands (incorporate a window here so the visitor also views the wetlands outside), along rivers and creeks, through forests (use a window again here to show the forest outside) and up into mountains (viewed as well through a window), and finally, an alpine landscape. Human interaction with the living landscape could be shown throughout the zones including historical use by First Nations. The interconnectedness would be very clear as visitors toured the perimeter of the room in one smooth sweep of ecosystems. (cjj)

Outdoor Displays

Outdoor exhibits can be anything from signage, to bird blinds, to pond dipping areas, to standing displays and outdoor learning games. A very successful exhibit at the Canadian Museum of Nature that could be applied to the field studies centre's outdoor displays is an interactive beaver dam. The dam is modelled after an authentic beaver dam and is large enough for visitors of all ages to climb through. Plexiglas walls allow viewing of vegetation that beavers eat, and benches arranged around the outside of the exhibit offer places for parents to wait and monitor children—while doing so they can read panels of text about beaver, from evolution of the species to cultural uses of the animal, to behaviour, etc. and then be able to provide children with answers. This idea can be modified as needed and could be built to very realistic standards with our local beaver dams as "templates."

Signage is an important outdoor consideration and works best with as little text as possible. Visual signage can show visitors the flora and fauna (and perhaps geological and meteorological elements, etc.) that they can expect to see along the trails (perhaps arranged by season?), and can parallel indoor displays where applicable. Signs should be consistent in looks with same coloured background, logos, and format—besides being clear to the visitor, it can also help if different series of signage are required for trail routes. Capilano Suspension Bridge park provides fun facts (ex: nurse logs) and "what's that tree?" identification clues, plus a giant "Naturalist's Notebook" that illustrates life in the ponds and the world of a fallen tree. The Stanley Park Ecology Centre focuses on signage that illustrates and explains what is directly in front of the viewer—in this case the birds on Lost Lagoon. People are fascinated with bird behaviour and always have questions for the naturalists in the centre.

At Oak Hammock Marsh a huge bird sightings board lists the 295 species that have been seen in the area, and has space for visitors to record by date, with a checkmark, which species they've seen themselves: fun to do, and helpful for others. And at the Vancouver Public Aquarium, professional naturalists are incorporated into the galleries to interpret animal behaviour.

Text vs Visual Components

The average visitor will read text for approximately one minute, and then move on—panels of text are not popular, and are often a waste. It was unanimous among sources surveyed that visual display elements (especially when interactive or combined with interactive elements) are more popular and more effective than text elements. Some text of course is necessary, and the recommended reading level to use is that of about grade eight—the average parent can then explain to younger children. Keeping the number of words to an absolute minimum is essential, as is making sure the text is not too pedantic.

Visual display elements are key in keeping visitors interested, and therefore in getting the centre's messages across. Anything alive goes over well. At the Freeman King Visitor Centre in Goldstream Park, the displays include tanks of salmon fry; a captured toad given as a gift that could not be released as it was not a native species (kids can watch the toad being fed worms); and stick insects that were also given as a gift and are very low maintenance. Other popular living displays are plants (with numerous possibilities), and honey bees.

Tyrrell Museum has a Cretaceous ocean display that plunges visitors into the depths with the fish by use of dim lighting, a Plexiglas floor depicting water with models of ocean creatures beneath, hanging displays of still more ocean-dwelling creatures that a spotlight moves slowly across, plus the use of curved walls. The display mimics an underwater prehistoric environment so well, that upon entering, visitors often jump back.

Children's Areas
Children need safe, FUN, interactive displays of their own in any interpretive area—if children are not happy, then parents will not be either. A portable, three-sided activity area is one way of assuring that parents can keep an eye on their children (only one way out) while enjoying exhibits themselves, and the portability would accommodate changing displays at the centre. When designing exhibits for children, it's a good idea to go around on your hands and knees to gain a child's perspective.

The Centre near Auckland, New Zealand, boasts a highly successful children's activity corner with low tables and counters that hold nature books and puzzles; piles of big comfy cushions; animal pictures, posters, and 3-D mural components with giant birds, butterflies, and plants; ceiling displays; a stand with branches that holds animal puppets, and a touch-screen with forest birds and their calls. There is space in the area for parents as well.

Idea A) Based on the ecosystems theme
A children's exhibit could be built using interactive elements to depict the same flow of water and energy from mountaintop to ocean as the main display:

- A tube, brightly painted on the inside with marine organisms could run along the floor for children to "swim through" like fish (floor of tube could be tectonic plates? Coral beds?)
- Another tube, stepped up and separate from the ocean tube, to depict the water of the wetlands and organisms there (newts and turtles in the mud, dragonfly larvae in the water, etc.)
- Up into the trees with a series of switchback steps up the wall (roped for safety), then into the alpine with giant images of wildflowers, creek, etc.

Granville Island's *Kid's Space* play area is a good example of this type of stepped-up, interactive children's entertainment. (ds)

Permanent vs Temporary Exhibits
General consensus among those queried, is that exhibits should change regularly and frequently to keep visitor's interest up. Travelling exhibits are an option and can come from a variety of sources such as museums, science centres, aquariums, etc., although they do require rental fees. There is also the possibility of borrowing collections and displays from universities and schools. Storage space will be required at one time or another for temporary exhibits whether rented, borrowed, or owned. It is generally agreed that exhibits go out of style in 10 years or less with ever-changing technology, trends, and taste.

Idea A) We would be better off in the long term (visitor-wise and financially) renting exhibits on tour from museums, science centres, etc., and borrowing collections, rather than renovating or renewing exhibits of our own every five to ten years. For example, we could bring in exhibits of local nature art, green building displays, geology (rocks and minerals/earth ball), native plant displays

(living and collected), fresh and saltwater fish exhibits (stickleback, salmon), stuffed bird collections with videos and interactive displays, fossils of the west coast, marine biology exhibits with tanks of live specimens, astronomy displays, some small pull-out exhibits of our own that fit in with various parts of the mural (can add these in as we obtain funding), perhaps with pre-set microscopes, or drawers with relevant hands-on items. The possibilities are endless.

- On the above theme, we could co-ordinate as many exhibits as possible with programs; for example when we know that a UBC instructor will be bringing students for a week of studies we can tee up with them about what to bring in for exhibits/displays to complement their class, and of course these would be new exhibits for the public each time. Same with elementary and high schools—pertinent exhibits could be co-ordinated with groupings of class visits; perhaps showcase science fair projects for certain programming.
- Temporary exhibits (either our own, rented, or borrowed) could also be co-ordinated with natural events and occurrences such as salmon runs, bat activity, bear sightings (could work with local conservation officer), as well as our own events such as the Wood Duck Festival.
- The Centre could produce some original exhibitry on themes such as *Co-existing With Wildlife*, and offer exhibits, lectures, etc. on how to live successfully with elk and beaver for example. These temporary exhibits could be stored on-site and displayed once a year or whenever timely.
- A permanent display that didn't require a lot of space (for example, a mural) depicting the centre's theme / mission statement would always be relevant. (cjj)

Idea B) Model of the Water Cycle (movable, centre-owned display)
A two-dimensional, lever or crank-driven model of the water cycle could be a movable exhibit for the centre to have built. Water would be lifted in "cloud" buckets from the "ocean" at the bottom and would spill some of their contents by when dragged over obstacles such as "forests" and "mountains." As the runoff trickles down past the "forest" the current would drive a moiré animation of wavy lines above the trees, showing evapo-transpiration. Floats could move in "wells" to show the changing water table at various points, while the sand and clay "earth" would provide realistic lag times as the water seeps through. (mp)

Implementation of Displays

- Keep in mind the hearing and vision of a large majority of prospective visitors (over 40?)—use sound absorbers throughout the room to counteract window glass and bare floors (fabrics, angled dividers, ceiling banners constructed of substantial materials), back-lighting for displays, etc.—expert advice would be worthwhile).
- Figure out a budget, even it is over a number of years—determine whether it is adequate to get across what we want to say

- Think good quality if displays are to last 10 years or more—if funds are limited stick to good quality and build one component at a time
- Use the cubic space of the interpretive centre efficiently—hanging displays are popular and striking whether they are birds, dinosaurs, or constellations, and the centre has vaulted ceilings around the main skylight as well as at the entrance
- 3-D banners could hang from the ceiling as well
- If possible, save final discussion on displays / exhibits for when you are actually standing in the building.
- Use catchy titles for displays as the *Centre of the Universe* does: Asteroid Collision Blues; Saturn—Lord of the Rings; Bad Astronomy
- Hire local people (fabricators, artists, etc.) whenever possible in order to give back to the community

Scope of Topic (concepts and focus)
Among the thirty-three sources approached, several recurring themes emerged in regard to concept:

- Keep it focused and narrow it down—better to concentrate on one or two strengths and do those well, rather than to go for a broader perspective—especially with only 1600 sq ft.
- Need to have the focus relate to everyday life—make the topics personal so that people can feel their own connectedness to them, whether it be wetlands, sustainability, or subduction zones

Two examples of concepts that could be too broad to be effective as displays are the interrelatedness of the ecosystems, and watersheds. Both topics are thought to be viewed by the public as “too complicated,” or “boring,” but could be incorporated into programming (or exhibits) in smaller focused chunks.

With a carefully chosen concept, the centre can attempt to develop a stewardship ethic through interpretive displays and programming, which visitors can then apply to other facets of their lives. Below are a number of ideas that education committee members have presented. All of these ideas are open to modification, blending, expanding, etc.

1. **Concept Ideas**

Idea A) Ecosystems
Want to stay away from static geoclimatic type characterizations. Displays could be related to water and energy flow through the living landscape—from alpine (mountaintops), down creeks and rivers, through wetlands, and out to sea. An all-encompassing zone would be man’s interaction with the living landscape (ecosystems). This concept would have a high First Nations and sustainability content. The displays should convey:

- That what we are seeking is a healthy life, and a feeling of well-being and safeness within a healthy environment
- The need to show the value and wonder of living in a healthy environment
- The need to put a price on a fully-functional ecosystem—it's worth a lot, and that's what make people sit up and listen
- A key theme of "resilience" and how much an ecosystem can take before it goes critical. (mj)

Idea B) Bioregionalism and Ecoliteracy
We want to extend beyond a traditional ecocentre with all themes aimed at building respect for nature. We could incorporate a local setting and bioregional history (deep biological zones, to Pleistocene glaciations, to glacial retreat, to aboriginal lifestyles, to early industrial, to present day) into the displays. (kg)

Idea C) Earth System Science
Interconnected—geo/hydro/atom/bio sphere systems with local examples; linkages between land, sea and sky, Gaia theory, climate science. One display could be a huge donated globe (earthball) that an artist could finish (a skilful, affordable artist may have been found). (kg)

Idea D) The Human Animal
Pristine versus modified versus devastated landscapes in the area— could highlight successes, reclamation work, etc. Sustainability and eco-footprinting could be a key focus for student groups, with curricula developed around the theme. (kg)

Idea E) Wetlands (as the featured aspect of an ecosystem theme, as in Idea A)
This topic has endless possibilities, is relevant because of the centre's wetlands, is an integral component of the ecosystems theme but a narrower focus, and can be made personal via displays so that people can feel their own connectedness to wetlands both at the centre and on into their daily lives:

- Show complexity of wetlands wildlife—animals above and below the water, in the air, and in the mud. Show them up close—metamorphoses of butterflies and dragonflies for example
- Food chains and webs in the wetlands environments (including humans)
- Wetlands as natural filters—everyone needs clean water
- Issues around selling water
- Water licenses and uses
- The centre's restoration of the wetlands
- Introduction of the principals of ecology
- Spotting environmental indicators (resilience theme here?)
- Outdoor dipnet areas for exploration
- Outdoor exhibits such as beaver dam. (km)

Idea F) Water Motifs (suggested as a temporary opening display evocative of the larger theme to come, but could be effective in its own right)
Hanging banners at varying heights could represent the essential water motifs, such as rain, creeks, lake, lagoon, marsh, ground water, aquifer, etc. Below each, small evocative displays with aspects of the larger theme, giving a taste of what is yet to come:

- Rain—could draw the visitor's attention to Ruby Lake's largest island which has a dramatic demarcation of southern Gulf Island / Western Hemlock zones within a few yards of each other, with yarrow, shore pine, arbutus, manzanita, and grassy bluffs to the southwest, and thick hemlock forest to the northeast.
- Lagoon—something on the site's history of logging, farming (there are water-logged logs, stumps, remnants of fruit trees, etc.
- Lake—information on Ruby and Sakinaw Lakes' salt-water depths, fish, etc.
- Marsh—a seasonable bird or observable amphibian (perhaps redwing blackbirds or a red-legged frog as it will be spring).

The possibilities are vast, and this approach would lend itself to a feeling of connectedness while signaling specific topic directions the centre would take in the future. The big picture and the necessary focus could be managed simultaneously. Focusing on the season should be kept in mind, as should directing the visitor to the burgeoning events outdoors. (jp)

Idea G) Based on ecosystems theme
If we arrange the displays around the peak-to-ocean "zones" concept then there really should be six zones: after intertidal / open ocean, there's the "Deep Zone" from subtidal down to Jervis Inlet's 660 m(?) deep spot. This includes spectacular gorgonian forests about 40 - 90 fathoms below Agamemnon Channel.

The chronological approach also has merit. It provides lots of room for showcasing the Human Animal theme as well. With two floors and an outdoors we may be able to do both. (mp)

Hiring a Designer
It was unanimous among sources approached that hiring an exhibit designer would be the centre's wisest course of action. A designer can be employed for as few or as many stages of the process as are required. A designer can:

- Help to define the project—develop and solidify a concept with input / outlines from committee (generally comprising a programmer, exhibit director, manager, delegates from [in this case] education committee, etc.)
- Facilitate a think-tank if necessary to bring together diverse perspectives—biology, earth and ocean sciences, astronomy, sustainability—and form a core message. This approach ensures that

various messages will be incorporated, and that the theme will not be weighted in any particular area
- Provide design concepts and renderings following initial meeting
- Advise on content, direction, and exhibit approach

When looking for a designer, be certain that they have experience in interactive exhibits rather than just in static, if interactive is what you want. Hiring an artist is similar: check what work they have done in the past, and realize that they also offer differing levels of services from concept drawings, to illustrations, to paintings, right to suggestions of other artists such as layout artists and graphic artists. When hiring an artist to do 3-D murals, experience is a must—because an artist can paint beautiful landscapes or striking wildlife, does not mean they can successfully paint 3-D murals or dioramas. When hiring a designer to take care of an entire project, the total budget would normally need to be known in order to come up with a master plan, even if the project is to be over a period of years.

Needs of Audience

Learning has become a leisure activity, so that challenging subjects—such as ecology—need a "hook" to help portray the topic in a positive light, and to give a sense of fun. Anxiety-provoking activities such as recycling workshops or climate change lectures, or topics that sound like work, such as biodiversity or sustainability, do not hold a candle to a movie on a Saturday for most people. Difficult subjects need to be wrapped into a broader picture, using popular topics and items as fun elements. Some examples from the Canadian Museum of Nature are:

- *Creepy Critters*—learn about critters that may live in your own backyard—watch live cockroaches, slugs, mice, and toads…
- *Animals in Nature*—do you know what animals are "saying"?
- *The GEEE*! in Genome
- *My Name is Nanuq*: The Diary of a Polar Bear

We must determine our audience and the needs of the different ages and educational levels, and decide how best to offer a wide range of exhibits to meet those needs. Above all else, it is the audience that must be kept in mind—we all know what *we* want, but is it what the audience will want? (Refer to section entitled Children's Areas for specific needs of child visitors.)

APPENDIX 1
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