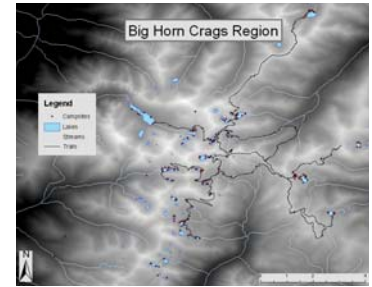


# Travel Simulation Modeling: Research on Changing Patterns of Wilderness Use

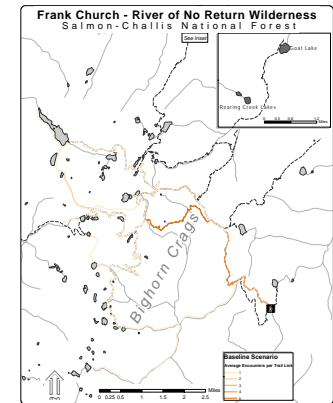
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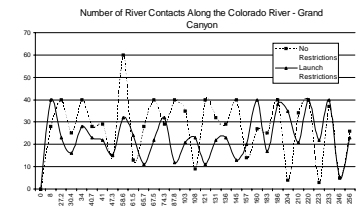
## Sample Model Outputs



Description of current situation: network of trails and campsites in the Frank Church Wilderness



Estimation of encounter levels: average daily encounters on each trail segment, Frank Church Wilderness



Management scenario comparisons: predicted river encounters in the Grand Canyon, with and without controls on launch timing

## What Are Simulation Models?

simplified representations of the real world

- observations of the behavior of the model, in different situations, are used to make predictions about the real world
- replacement for "trial and error"
- means of generating information that is too expensive to collect or too difficult to obtain (due to complexity and variability of situation)

## What Can Models Be Used For

### 1. Inventory/ Monitoring

- describe visitor use levels and distributions (current situation)
- monitor indicators (e.g. trail encounters and encounters at campsites)

### 2. Management

- estimate use levels that can be tolerated, given specific standards and other management practices
  - assess the effectiveness of alternative management practices
  - predict consequences of future changes in use, infrastructure, transportation, etc.

## How Do You Do It?

Input data on:

- the network to be simulated (e.g. trails and campsites)
- users--group sizes, modes of travel, arrival patterns (when they arrive...), travel speeds, delay times at attraction sites
- the routes users take (from trip diaries or permit data)

Develop and run the simulation models using:

- commercially available general purpose simulation software
- special purpose software designed to simulate recreation systems

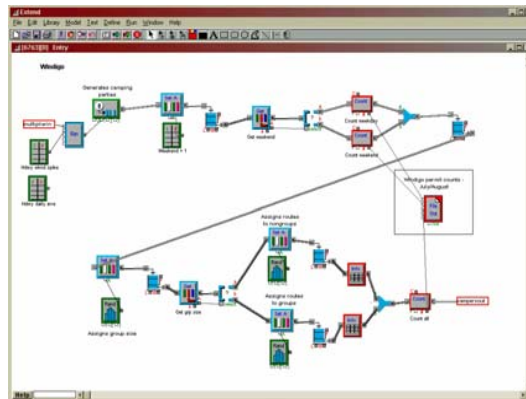
## A Collaborative Project

With funding particularly from:

- National Park Service, Washington Office
- Rocky Mountain Cooperative Ecosystem Studies Unit
- Aldo Leopold Wilderness Research Institute

We convened the two primary groups of recreation modelers: (1) Bob Manning, Steve Lawson and colleagues who use the general purpose simulation software package, Extend and (2) Randy Gimblett and Bob Itami who have developed special purpose software, RBSim.

These two groups collaborated on a demonstration project, two workshops were held and a technical report on the state-of-the-art is about to be published by the Rocky Mountain Research Station, Forest Service. Check for availability at [leopold.wilderness.net](http://leopold.wilderness.net) or by emailing [dcole@fs.fed.us](mailto:dcole@fs.fed.us).



Schematic diagram of computer model used to estimate campsite sharing at Isle Royale National Park