



UNIVERSITY OF SOUTH CAROLINA

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SCHOOL OF PUBLIC HEALTH

Department of Environmental Health Sciences
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28 February, 1987

Dr. Jerry Franklin ⁵⁰³
Forestry Science Laboratory - ⁵⁰³ 454-4382 - 454-4362
3200 Jefferson Way
Corvallis, OR. 97331

206-543-5188 Seattle

Dear Dr. Franklin:

As we discussed by phone on Thursday, I am interested in doing some collaborative work in ecological modeling with other LTER sites. I am particularly interested in developing models which integrate forest-soil hydrology, nutrient transport, and forest-stream interactions. Our modeling efforts at North Inlet have focused mainly on nutrient and population dynamics in a salt marsh/estuarine ecosystem. More recent focus on landscape-level properties of our system has indicated the importance of stream flow input from the landward boundaries of the marsh. Consequently, we have begun to develop models of the surrounding forests as they control major inputs to the coastal marshes. The enclosed flow diagram summarizes some basic features of the model we are developing for simulation analysis.

Although such a "submodel" represents an important component of our coastal landscape, it is equally important to begin systems-level comparisons of forest nutrient dynamics and stream interactions for different landscapes. In the southeastern U.S. we have the opportunity to compare patterns as they vary between a steep slope upland system, represented by the Coweeta LTER site in the North Carolina mountains, and a low gradient coastal system, represented by our North Inlet LTER site. Some ongoing cooperative field work at these two sites (Liz Blood and others) is providing parallel data sets on some of these processes and it is an appropriate time to use simulation modeling techniques to examine some systems-level properties on these interactions.

I have talked with Dr. Jack Waide who is working on ecosystems models for the Coweeta site; he agrees that some cooperative work would be useful and he is willing to collaborate on some initial efforts this summer. It may also be useful to include a third site for comparison representing an intermediate slope, midlands forest site such as the ones being studied at the Savannah River Ecology Laboratory in Aiken, S.C. Although SREL is not *also the Va. Coast Reserve has been contacted about participating.*

in the LTER network, they do have active and long-term research on their forest systems which would be useful in these comparisons. Furthermore, looking ahead to LTER involvement in the IGBP, this systems-level comparison of forest nutrient dynamics and stream interactions from the mountains to the coast will stimulate some broader scale thinking on the importance of such regional links in models of global biogeochemical dynamics.

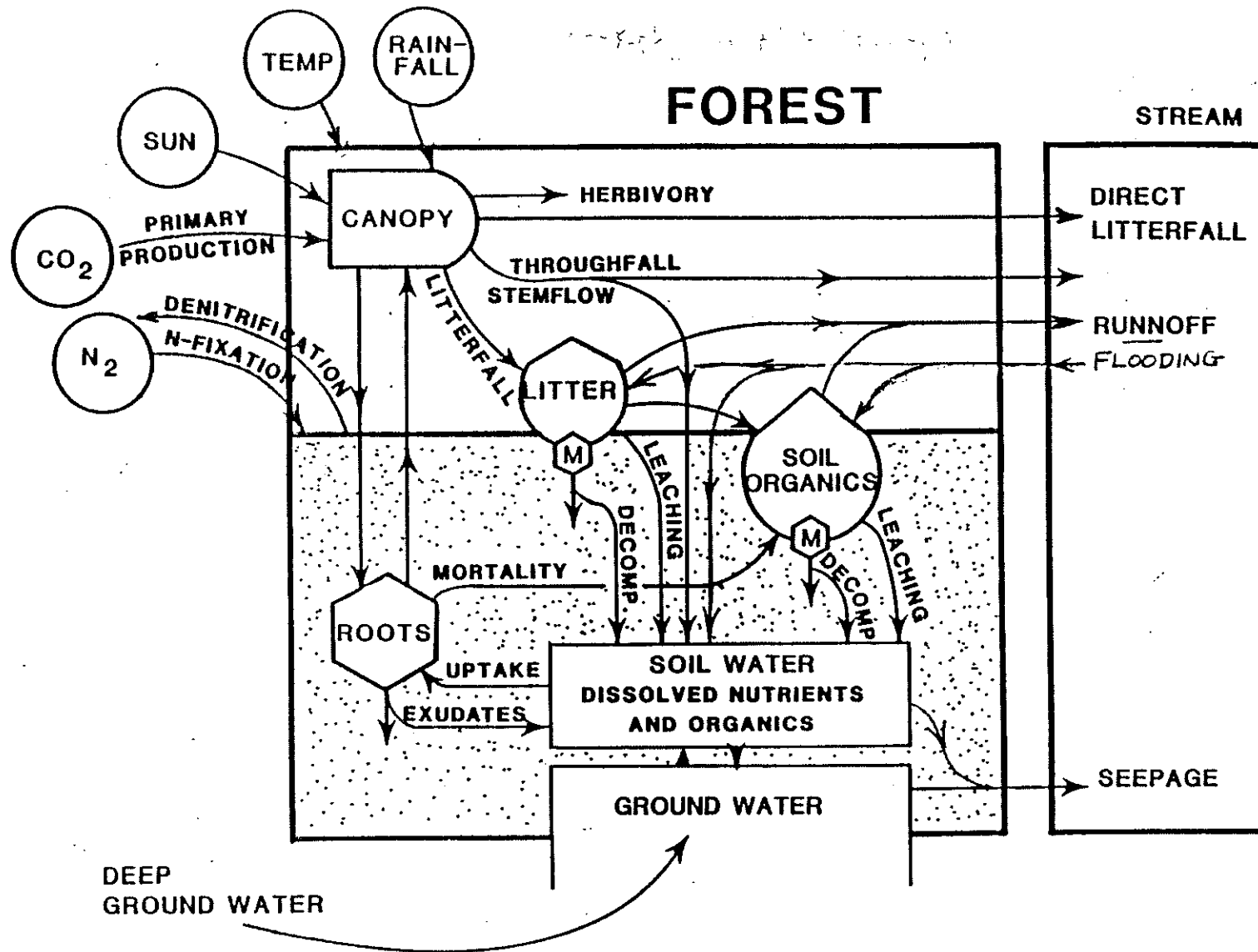
I look forward to your suggestions on this type of work. Please contact me if I can provide further information on our work at North Inlet or this proposed collaboration.

Sincerely,



H.N. McKellar, Jr., PhD
Associate Professor

cc Dr. Jack Waide
Dr. John Vernberg



BUDGET

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|---|----------|
| 1. Salary (1 month; H. McKellar)..... | \$ 3,600 |
| 2. Travel | \$ 650 |
| 3. Computer (Time, Software)..... | \$ 1,000 |
| 4. Indirect Costs (50% total direct costs)..... | \$ 2,625 |
| TOTAL | \$ 7,875 |