

## PhD Position

The Silviculture Institute at Freiburg University is offering a PhD position to carry out a research project on

### **Development of methods to characterise plant available phosphorus in large scale forest soil inventories**

The position is anticipated to start in June 2011 and can be filled for three years. Payment is subjected to the German standard tariff (up to 65% TVL13).

The PhD position will be integrated in the research group of Prof. Jürgen Bausch at the Institute of Silviculture ([www.waldbau.uni-freiburg.de/](http://www.waldbau.uni-freiburg.de/)). The project is funded by the federal Ministry of Food, Agriculture and Consumer Protection through the von Thünen-Institute and will be carried out in collaboration with the forest experimental stations in Freiburg and Göttingen.

Previous nation-wide forest soil inventories have indicated that a significant proportion of forest stands may be P limited. However, this assessment is based almost solely on leaf and needle tissue concentrations. So far, only total soil P has been determined in these large scale inventories. Determinations of P fractions of different availability for plant uptake are commonly very onerous and expensive and have therefore not been included in a standard analytical protocol. This limits the interpretation of trends in P availability in forests and the analysis of possible causes for changes. Therefore, this project aims to develop alternative methods to quantify soil P fractions based on their spectral properties. Specifically, this project will assess the Hedley fractionation method to quantify soil P pools of different availability in German forest soils. It will further attempt to predict these P fractions on the basis of their spectral properties.

#### **Your tasks**

- Selection and acquisition of soil samples from existing inventories for analysis of P fractions
- Determination of soil P fractions using the Hedley fractionation method
- Development of models to predict P pools in forest soil samples based on spectral properties
- Interpretation of P pools and their temporal changes in the context of additional information from inventories (other soil properties, nutrient cycling, weather, etc.)
- Conduct of greenhouse study to examine the change in P pools under the influence of plant P uptake.
- Writing of publications and project reports

The laboratory work that is part of this project will be supported by technical staff.

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### Your profile

- Excellent Master or Diploma degree (or equivalent) in Soil Science, Biology/Ecology, Forestry or Environmental Sciences with a background in soil chemistry, nutrient cycling, and forest ecology.
- Competencies in wet chemistry laboratory methods and near-infrared spectroscopy desirable.
- Willingness and ability to work in a team
- Flexibility and ability to work under pressure
- Working knowledge of statistics and fluency in English
- Preparedness to travel for field work, project meetings, conferences etc.
- Current driver's license for motor-vehicle

The University of Freiburg aims to increase the proportion of women in academic positions and therefore welcomes in particular applications by females. Disabled persons with equal qualifications will be preferably employed.

Applications must include a motivation letter, CV, copies of certificates, copies of publications or theses, and names and contact details of two academic referees. Please submit applications until the 30. April 2011 as a single PDF file to [waldbau@waldbau.uni-freiburg.de](mailto:waldbau@waldbau.uni-freiburg.de).

Further information will be provided by Prof. Dr. J. Bauhus (Tel. 0761-2033678, Email: [juergen.bauhus@waldbau.uni-freiburg.de](mailto:juergen.bauhus@waldbau.uni-freiburg.de)) or Dr. Martin Kohler (Tel. 0761-2033673, Email: [martin.kohler@waldbau.uni-freiburg.de](mailto:martin.kohler@waldbau.uni-freiburg.de) ).