



## INTERNSHIP OFFER

### Spatial analysis of habitat fragmentation and disease incidence in the United States of America

*The National Research Institute for Agriculture, Food and Environment (INRAE) is a public research institution composed of over 12000 individuals, 200 research units, and 42 experimental units distributed across France. INRAE is positioned as one of the leading research institutions for agriculture, food, and plant and animal health. Its research aims to develop flexible, adaptable, multi-purpose agricultural systems, improve food security, and integrate of sustainable practices into the management of natural resources and the environment.*

#### YOUR MISSION AND ACTIVITIES

- You will be welcomed at the BETA (Bureau of Theoretical and Applied Economics), a mixed research unit of economics and management located in the Grand Est region of France and spread across three sites (Strasbourg, Unistra; Nancy, UL and AgroParisTech). The BETA is composed of approximately 250 members working across five research axes: (1) law economics, (2) cliometry and economic history, (3) behavior, incentives, and sustainable development, (4) macroeconomics and public policy, and (5) creativity, science, and innovation. The members based at the AgroParis Tech Nancy campus are specialized in environmental economics, risk economics, and forest economics.
- You will work on the project "Habitat Fragmentation and Disease Incidence" (BROADSIDE), jointly financed by INRAE. The project seeks to formally establish a link between habitat fragmentation and disease incidence, and measure the tradeoffs between fragmentation via land use change and disease mitigation in the context of ecosystem service management.
- This offer will focus on the first part of the project. Specifically, you will be charged to :
  - construct of a novel, spatio-temporal database of land and forest cover in the United States of America, specifically focusing on Pacific northeast and Colorado.
  - by applying standard measures of fragmentation (such as the fractal index), calculate rates of habitat fragmentation within and around each commune in the disease data over time.
  - combine the data of habitat fragmentation with that data of disease incidence and other relevant demographic, economic, and ecological variables.
  - time permitting, develop a statistical model to estimate the relationship between disease incidence and habitat fragmentation, controlling for relevant demographic, economic, and ecological factors
  - document your work, including the source data and metadata, and the methodology used in the production of spatial maps of forest cover and fragmentation and construction of the full data set, with respect to the FAIR principles (Findable, Accessible, Interpretable, and Reusable).
  - write a report for a scientific audience, as well as prepare summary documents for the general public
- Data will be obtained from the NASA EarthData database, and complemented by other public data repositories such United States Geological Services (Landsat Lookviewer).

## DESIRED PROFILE

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- Recommended degree : Master / Ingénieur (Bac +5) in economics, statistics, or environmental sciences
- Research competencies :
  - Experience with GIS, and proficiency with statistical programming (such as R) is a plus
  - Taste for research and empirical data analysis in particular
  - Rigor, autonomy, and the ability to adapt and synthesize information
  - Good interpersonal and writing skills, high level of English
  - Knowledge of forest ecosystems and forest management is a plus

### ↳ Modalités d'accueil

- Unit: BETA, campus AgroParisTech
- Postal code + city: 54 000 Nancy
- Type of contract: internship
- Duration of contract: 6 mois
- Starting date: 3 weeks of administrative delay

### ↳ Modalités pour postuler

Send a motivation letter and a CV to:  
David Shanafelt

▪ By e-mail: [david.shanafelt@inrae.fr](mailto:david.shanafelt@inrae.fr)

✘ Closing date for submission: 28 March 2022