**USFWS Sponsored Course: Environmental Sampling and Monitoring using R**

WEST's Senior Biometrician, **Dr. Lyman McDonald** and Dr. Timothy Robinson from the University of Wyoming are going to present the course "Environmental Sampling and Monitoring using R" December 12th-16th, 2011 in Denver or Fort Collins, Colorado. This course is being presented for the USFWS National Conservation Training Center.

This course will develop the participant's skills needed to monitor species trends and distributions, and assess changes due to management actions or impacts in the environment. The design aspects used in class will address the ecological and predictive capacity of prospective approaches, with the overall aim of increasing the predictive power of the analyses and reducing the error associated with modeling the environment. The overall goal of the course is to familiarize the participants with the statistical sampling concepts and definitions, and the "where", "when", and "how" of sampling. The six primary objectives of the course will include: site selection designs, stratification, panel rotation designs, field methods and their influences on detectability, status estimation, and trend estimation.

Data Analysis IIIB course will explore the principles and application of analytical approaches and design techniques important to the management of threatened and endangered plant and animal populations. Emphasis will also be placed on the development of design and analytical skills, and the estimation of status and trends. The course is designed for the students to learn the concepts and techniques through lectures, exercises, and working with data sets. The aim of these exercises is to familiarize students with the mathematical notation, statistical approaches, and modeling techniques frequently used in designing and implementing field studies.

Concepts and techniques covered in class will include: (1) haphazard and convenience sampling; (2) terminology; (3) site selection and variable probability sampling; (4) stratification and "soft" stratification using GRTS: (5) panel rotation designs and concept of connectedness; (6) field methods and using repeat visits for presence; (7) bootstrapping and computer simulation; (8) status estimation using quadrat and distance methods; and (9) trend estimation for both abrupt and long-term trends.

Instructors: Dr. Timothy Robinson (University of Wyoming, Laramie Campus)
Dr. Lyman McDonald (WEST, Inc.)

The course is designed for individuals who are competent in basic statistics and are familiar with linear and logistic regression, and how to use an ANOVA table. Students should be interested in developing and/or strengthening their ability to perform reliable and unbiased analyses. We are targeting FWS biologists and others whose job responsibilities include the assessment and analysis of population or habitat data or trends in populations for a variety of activities or responsibilities.

Course Length: 4 ½ days/36 hours

Course Objectives: The objective of this course is to develop critical monitoring and design skills, based upon reliable analytical techniques that are consistent with statistical sampling theory and field implementation; whereby, participants will be able to assess and monitor the distribution of plant and animal species based upon both abiotic and biotic attributes of the species and its environment.

Cost: There is no tuition fee for FWS, NPS, and BLM personnel. Tuition is $950 for non-FWS participants.

How to Apply: Register online at https://doilearn.doi.gov/. Non-DOI employees should contact Barbara Evans at 304-876-7451 or (barbara_evans@fws.gov). The course code is CSP4230.

Questions: Please contact Joe W. Witt (joe_witt@fws.gov) or So Lan Ching (solan_ching@fws.gov), Division of Conservation Science and Policy, at 304/876-7447 or 304/876-7771.