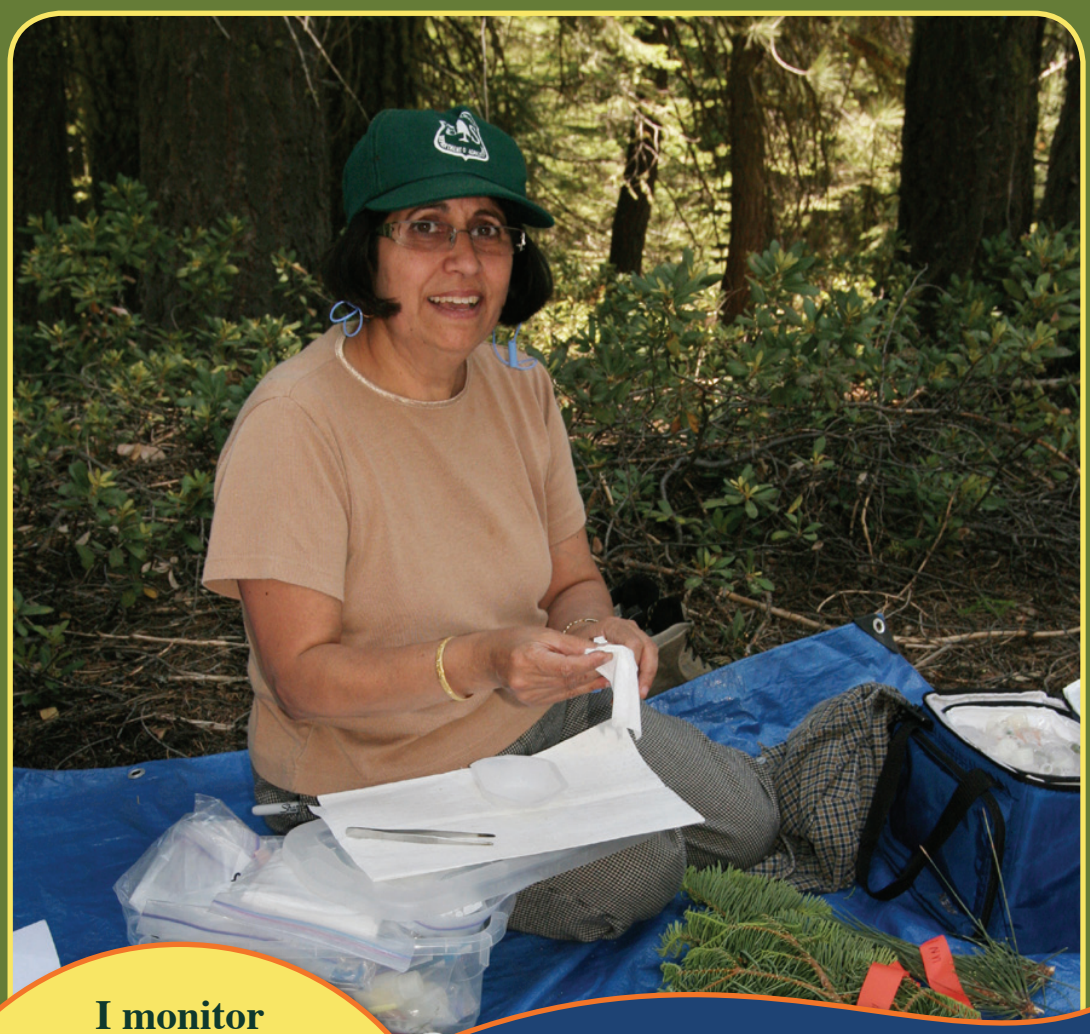
Meet the Scientist!



I monitor forest health by measuring the content of stress-related compounds (biochemical indicators) the way doctors use cholesterol and insulin levels in blood tests as indicators of human health.

Dr. Rakesh Minocha

Ecophysiologist

Ph.D., University of New Hampshire

USDA Forest Service scientist

CRADLE of FORESTRY Interpretive Association IN AMERICA

http://www.naturalinquirer.org

http://www.scienceinvestigator.org

Dr. Rakesh Minocha

Important Scientist Characteristics

★ Curiosity ★ Good record keeping

★ Critical thinking ★ Strong mathematics

★ Logic

Example of a simple research question I have tried to answer: Can we find out which chemicals inside a tree respond more to stress? Using one of these marker chemicals, can we perform a simple test on parts of trees to find out if they are sick from poor diet, infections, or pollution? (This is similar to a blood test for sugar).

Technology or equipment used in research:
I use chromatographic techniques to separate, identify, and quantify stress-related compounds within the cells. I also use a spectrophotometer to study nutrients, chlorophyll, and protein amounts present in the cells. I grow tree tissue and cell cultures in the laboratory to study pollutants effects on the health of the cultures.

http://nrs.fs.fed.us/people/rminocha

Most Exciting Discovery

Plants that grow under stressful conditions spend more energy to protect themselves. These plants have higher levels of stress-related compounds relative to their healthier counterparts. Thus they spend less energy into growth processes. Resistant plant varieties produce more stress-related metabolites compared to sensitive ones.

When did you know you wanted to be a scientist?

I went to high school in India and there we had to choose between science and arts in eighth grade. I chose science. I did an M.S. in Limnology (study of fresh water lakes and ponds) in India and another in the US. Then I did my Ph.D in breast cancer research.