

aPods Rule!

would have no way to know if more or fewer arthropods were living close to the logs.

Introduction

- **State the null hypothesis used by the scientists. (See “Thinking About Science” for a hint.)** *Here are some possible null hypotheses: There is no relationship between old logs and the habitat of arthropods living in leaf litter after a fire has burned the forest floor. After a fire has burned the forest floor, old logs are not important to arthropods living among the leaf litter. There will not be an increase in the number of leaf-litter-dwelling arthropods living near old logs, compared with those living away from logs, following a fire. This last hypothesis is the best, because it brings in the idea of measurement. Students may come up with similar statements. It is important for students to understand that hypotheses are made as statements of relationship, and that a null hypothesis states the lack of a relationship between two variables.*
- **Is fire a good thing for longleaf pine forests? How do you know?** *Students should conclude that fire is a good thing for longleaf pine forests because fire is needed to open up areas so longleaf pines can grow, and longleaf pines have adapted to resist and survive fires.*

Methods

- **Why did the scientists include areas that were not burned at all?** *In many experiments, scientists use a control. A control gives scientists a way to compare their experimental treatments with what would happen if they did not do any of the experimental treatments.*
- **Why did the scientists want to collect arthropods near the log and away from the log?** *The scientists wanted to see if logs provided habitat for leaf-litter-dwelling arthropods following a fire. If they did not collect arthropods away from the log, they*

Findings

- **Do you think the scientists accepted or rejected their null hypothesis? Why or why not?** *The scientists had to accept their null hypothesis as true, meaning they found no relationship between the number of leaf-litter-dwelling arthropods and the presence of logs following a fire.*
- **Do you think this study proves that leaf-litter-dwelling arthropods do not use logs as habitat after a fire? Why or why not?** *This is an individual question and each student must think this through for themselves. However, you may challenge students to consider other reasons that fewer arthropods were collected near the logs.*

Discussion

- **Is it important to understand what happens to arthropods following a fire? Why or why not?** *This is an individual question and students should present their position in a class discussion.*
- **What are some advantages of being surprised at your findings?** *Students should recognize that, when scientists are surprised by their findings, new questions are possible that might not have been possible had they discovered what they thought they would discover. In this case, the scientists may have discovered problems with their data collection. Alternatively, they may have discovered something unexpected about the preferences of leaf-litter-dwelling arthropods.*

Keeping It Local

Introduction

- **State what the scientists wanted to know in the form of a question. How do**

wildland-urban interface (WUI) communities describe and identify the boundaries of their WUI in a Community Wildfire Protection Plan?

- **How do you think the scientists answered their question?** *Students should have been clued in by “Thinking About Science.” The scientists interviewed people in four communities to answer their question.*

Methods

- **A case study is a detailed look at one individual, one group, or one event. Think about something you have studied recently. How might you extend your examination by doing a case study? Who or what would you study?** *This is an individual question. Students should be urged to think of how they might learn more about something by doing a case study. For example, let’s say your class had recently studied earthquakes. A case study might be done of one community that had recently experienced an earthquake.*
- **Why would it be important to interview a variety of people in the community?** *People living in communities have different opinions and experiences. To truly understand what happened in the community, many different people must be interviewed.*

Findings

- **Why do you think members of fire departments affected the way the WUI was defined and described?** *People working in fire departments would have a lot of information about fighting fires. They would know which areas were at greater risk of a wildfire. They would know the conditions of the roads and how long it would take for a fire engine to reach a fire.*
- **What was one benefit of having community members work together to define and describe their WUI?** *Differences of opinions could be discussed, and community members could come to an*

agreement. This eventually leads to a better plan, which offers better opportunities to protect areas from wildfires.

Discussion

- **Think about the large areas of undeveloped land in the Western United States. Do you think most of that land could be considered the WUI? Why or why not?** *Students should realize that vast amounts of undeveloped land should not be considered the WUI, since by definition the WUI includes some buildings.*
- **Give another example of when getting together to discuss something resulted in a better plan of action.** *This is an individual question, and students should be challenged to think of something in their own life or something in the news. An example from current events would be worldwide discussions about planning for climate change or discussions about developing a nuclear weapons reduction plan. An example at the local level is community land use planning. In the classroom, students may have collectively discussed and subsequently planned an event.*

Pecking Order

Introduction

- **In the form of a question, state what the scientists wanted to learn in this study.** *What types of post-fire snag forests were best for the Black-backed woodpecker’s foraging?*
- **In your own words, describe why a keystone species is important.** *Keystone species are important because they provide us with an early indicator that something is changing in the environment that may cause problems for other native species living there.*
- **Do you think it is important to improve the habitat for keystone species? Why or why not?** *This is an individual question.*