Chapter 2
Introduction:
Establishing a Context

In this and the next two chapters I focus on the first part of the experimental research report, ***the introduction***. The introduction serves as an orientation for readers of the report, giving them the perspective they need to understand the detailed information coming in later sections.

The introduction can be divided into five parts, or stages. In stage I, the writer establishes a context, or frame of reference, to help readers understand how the research fits into a wider field of study. I examine and practice stage I, the setting, in this chapter.

INFORMATION CONVENTIONS

The five Stages

In order to better understand the function of Stage I, the setting, let us begin by briefly looking at all five stage of an introduction. Following is the introduction to the research report about entomology that we saw in Chapter 1. Notice that it contains five distinct stages.

Life history characteristics of *Orius insidiosus* (Say) fed diets of soybean aphid, *Aphis glycines* Matsumura and soybean thrips, *Neohydatothrips variabilis* (Beach)

The impact of a generalist predator on a prey species will depend not only on the abundance and susceptibility of that prey species but also on alternative prey (Holt and Lawton, 1994; Eubanks and Denno, 2000). Alternative prey can have both positive and negative effects on predation by a generalist predator depending on how they contribute to the predator's life history and population growth (Musser and Shelton, 2003; Koss and Snyder, 2005). For example, negative prey–prey interactions occur when populations of one (alternative) prey bolster predator densities increasing their impact on a second (focal) prey (Koss et al., 2004). In contrast, positive prey–prey interactions can occur when one (alternative) prey, ''shields'' the focal species from predation if predators prefer to feed on an

alternative prey in preference to the target pest (Abrams and Matsuda, 1996; Koss et al., 2004). In crops, alternative prey can help sustain generalist predator populations in the absence of pest populations, and alternative prey can improve the nutrition of generalist predators, which can result in increased survival and reproductive rates (Koss and Snyder, 2005; Settle et al., 1996; Agusti et al., 2003). The soybean aphid, *Aphis glycines* Matsumura (Hemiptera: Aphididae), is native to Asia and was first discovered in North America in 2000 (Blackman and Eastop, 2000; Ragsdale et al., 2004). In North America, generalist predators dominate the natural enemy community attacking soybean aphid in the soybean crop (Fox et al., 2004; Rutledge et al., 2004). In Indiana soybeans, the generalist predator *Orius insidiosus* (Say) (Hemiptera: Anthocoridae) appears to be an important natural enemy of soybean aphid early in the crop season (Rutledge et al., 2004). The predator is often present in soybean fields before soybean aphid colonization and during this time it is the numerically dominant predator (Rutledge et al., 2004; Rutledge and O'Neil, 2005). *O. insidiosus* is a polyphagous predator and feeds on a wide variety of arthropod prey in soybean fields. The predator can also use non-prey foods such as soybean pollen and gain minerals from soybean xylem, which can allow *O. insidiosus* to survive periods of prey scarcity (Isenhour and Marston, 1981; Armer et al., 1998). Alternative foods have been known to affect predation rates of O. insidiosus, and have been shown to reduce attacks on focal prey (Ables et al., 1978; Musser and Shelton, 2003).

The most common prey item available to *O. insidiosus* in soybeans is the soybean thrips, Neohydatothrips variabilis (Beach) (Thysanoptera: Thripidae) (Blickenstaff and Huggans, 1962; Mayse, 1978; Irwin et al., 1979; O'Neil unpublished data). O. insidiosus is known to commonly feed on soybean thrips in soybeans and it exhibits a numerical response to soybean thrips in the field (Isenhour and Yeargan, 1981a; O'Neil unpublished data). Populations of *O. insidiosus* and soybean thrips are often closely coupled and *O. insidiosus* has been commonly associated with large populations of soybean thrips (Raney and Yeargan, 1977; Irwin and Kuhlman, 1979; Isenhour and Yeargan, 1982; O'Neil unpublished data). While life history characteristics of *O. insidiosus* fed ad libitum soybean thrips have been measured (Kiman and Yeargan, 1985), their life history characteristics when fed lower levels of soybean thrips has not been assessed.

In a previous study, we (Butler and O'Neil, 2007) reported the life history characteristics of *O. insidiosus* fed 1, 3, 6 or 12 soybean aphids. We found that *O. insidiosus* can survive, develop, and reproduce on a soybean aphid diet and these characteristics generally improved as the predator was fed more frequently. However, the life history characteristics of *O. insidiosus* fed combination diets of soybean aphids and soybean thrips have not been measured and the impact of these diets on *O. insidiosus* life history is not known. The objectives of this study were to evaluate the survival, development, longevity, and fecundity of *O. insidiosus* fed soybean thrips, or fed combination diets of soybean aphids and soybean thrips. Ultimately, our goal is to better understand *O. insidiosus* life history characteristics to use this predator in conservation biological control programs in the soybean crop.

Ordering your Information

The preceding example is typical of introductions to experimental research reports in many different fields in terms of (1) the Kinds of information it provides to the reader and (2) the order in which the information is sequenced.

First Stage:

General statement (s) about a field of research to provide the reader with a *setting* for the problem to be reported.

Second Stage:

More Specific statements about the aspects of the problem already studied by other researches.

THIRD STAGE:

Statement(s) that indicate *the need for more investigation*.

FOUR STAGE:

Very specific statement(s) giving the *purpose/objectives* of the writer‘s study.

FIFTH STAGE:

Optional statement(s) that give a *value or justification* for carrying out the study

Inventing the Setting

You should write the setting (Stage 1) of your introduction so that it provides your readers with the background necessary to you see the particular topic of your research in relation to a general area of study. In order to do this, start with obvious, generally accepted statements about the area in which you are working. Then, step by step, move the reader closer to your specific topic. You may do this in just a few sentences or in several paragraphs.

You can think of this stage as a process of first , establishing a "universe" for your readers; then , isolating one "galaxy" within this universe; and finally, leading your readers to one "star" in the galaxy. That "star" is your specific topic.

STAGE 1: THE SETTING

1- Begin with accepted statements of fact related to your general area (your "universe ")
2- Within the general area, identify one subarea (your "galaxy" which includes your topic)
3-Indicate your topic (your "star ")

Linking ideas through old and new information order

To lead reader smoothly through the ideas in stage I, writers link sentence by making use of *old* and *new information*. This is done by placing old information that is, information already known to the reader- at the beginning of sentence and placing new information at the end.

OLD / NEW INFORMATION ORDER

Plants obtain atmospheric CO_2 required photosynthesis by diffusion through open leaf stomates.

Old	*New*
While this is taking place,	water in the leaf parenchyma tissues evaporates into the sub-stomatal cavities and diffuses through the open stomates into the atmosphere
This process	can create large water potential differences between the leaves and the soil surrounding the roots

LANGUAGE CONVENTIONS

General and Specific Noun Phrases

As we have seen, Stage I of the introduction usually begins with factual statements about the general area which includes your specific topic. When you write these kinds of general statements, it is conventional to use nouns that refer to objects or concepts at the highest possible level of generality. English offers several ways to construct these general nouns, which we examine in this section.

Generic Noun Phrases

Statements in the setting of an introduction tend to be general in nature. Instead of referring to specific things, they often refer to entire classes of things when you write sentences that contain nouns referring to an entire class of things, you should use *generic noun* phrases to carry this meaning. *Generic nouns* phrases refer to all members of a particular class of living things, objects like "*alluvial diamonds*", in the previous example.

In English, there are different ways to write generic noun phrases. If the noun is *countable*, you can make it generic by adding the plural maker -s and omitting any article, or by using it in its singular from with the indefinite article a or an.

GENERIC NOUN PHRASES: Countable nouns

EXAMPLE: *Alluvial diamonds* are of consistently quality than diamonds recovered from source kimberlites (Plural)

EXAMPLE: A new diamond mine may take several years before coming into full production. (Singular, meaning "any new diamond mine")

When the noun you want to use is uncountable, you can make it generic by omitting any article. (of course, uncountable nouns never take a plural -s).

GENERIC NOUN PHRASES: Uncountable Nouns

EXAMPLE: Thirty years later, alluvial diamond production had more than doubled. (meaning" all alluvial diamond production ")

In addition, English has a fourth way of forming generic nouns you should learn to recognize and use. *A countable noun* in its singular from sometimes carries the generic meaning when used with the definite article *the*. This kind of generic noun phrase is often when referring to living creatures or familiar machinery and equipment.

GENERIC NOUN PHRASES: Countable Nouns with *the*

EXAMBLE: The hummingbird can be found in all area of North America.(meaning "hummingbirds in general ")

EXAMBLE: The United States has experienced the integration of the computer into society. (meaning "computers in general ")

Specific Noun Phrases

I have seen that the first part of Stage I, the setting of the introduction, usually contains a large proportion of generic noun phrases. Later in the setting, you will probably find it necessary to refer to specific items and concepts in order to move the reader from the general area toward your specific topic. This requires the use of *specific noun phrases* – that is, nouns that refer to particular, individual members of a class rather than to

the class as a whole. In English nouns with this meaning can be written in several ways.

1- Referring to assumed or shared information. Use the definite article the if you assume your readers share knowledge of the specific thing you are referring to.

SPECIFIC NOUN PHRASES:
Referring to Shared Information

EXAMPLE:
In recent years, the growth of desert area has been accelerating in the world.

2- Pointing back to old information. Use the definite article when referring to a specific thing which you have already mentioned (the first mention usually uses the indefinite article a / an)

SPECIFIC NOUN PHRASES:
Pointing back to old information

AXAMPLE: New Mexico solar energy institute is developing *a computerized diagnostic assistant* for solar domestic to water system. *The computer-implemented assistant* will be used at naval facilities throughout the world

3- *Pointing forward to specifying information*. Use the definite article *the* when the specific meaning is made clear in *a following phrase or clause.*

SPECIFIC NOUN PHRASES:
Pointing Forward to Specifying Information

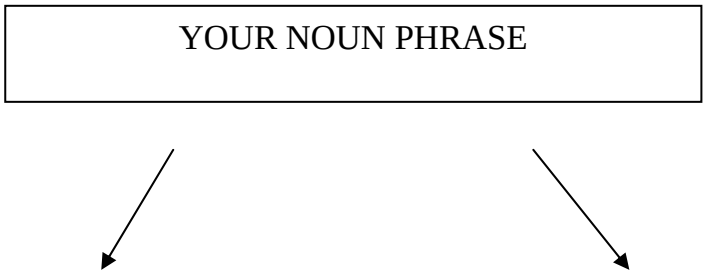
EXAMPLE:
The gas which is produced in the western states is used primarily for home heating.

Guidelines for Marking Generic and Specific Noun Phrases

If you are having difficulty determining which, if any, article to use before a noun or noun phrase, ask yourself the following sequence of questions:

1- Is the noun meant in a *general or a specific sense*? If it is specific, use "*the*" before the noun. If it is general, ask yourself a follow-up question.

2- Is the noun countable or uncountable? If it is uncountable, use Ø (no article or-s ending).



1. GENERAL?		SPECIFIC?
2- uncountable	countable?	the (add -s if plural)
Ø	a/an(singular) -s(plural)	

EXPRESSING OLD INFORMATION

There are various ways you can state old information in a previous sentence. One way is to simply repeat a word or to use a derived from of the word.

EXPRSSING OLD INFORMATION:
Word Repetition and Derivation

EXAMBLE: Approximately three years ago, an apparently new and unexplained disorder called acquired immune deficiency syndrome (AIDS) was recognized. Characteristically, AIDS is associated with a progressive depletion of T cells.

EXAMBLE: Of interest is that part of the world's ice which occurs on rivers. Although river ice forms only a fraction of the total quantity of ice in the world, it has significance.

Another way you can indicate old information is to use pronouns and pointing words.

EXPRESSING OLD INFORMATION:

Pronouns and Pointing Words

EXAMPLE: Water is one of the most intriguing substances on earth. *It* has the interesting property that its freezing point is within the range of the earth's surface temperature variation for significant parts of the year.

EXAMPLE: Ice forms when water is cooled to 0˚C and continues to lose heat. Generally, *this* happens when the air temperature falls below 0˚C.

Sometimes you can assume the reader knows the old information without your having to state it explicitly.

IMPLIED OLD INFORMTION

EXAMPLE: Curly top virus can be a serious problem in tomatoes. *The incidence* (of curly top virus) varies from year to year.

EXAMPLE: Withholding or withdrawing life-supporting treatment is one of the most important ethical issues for medicine in the late twentieth century. *At least six physicians have been accused of murder* (to give you one example of ethical consequences involved in withholding or withdrawing treatment) this year alone.