



Putting Scientific Work in Context: Introductions

Nearly all journal articles have introductions that contain the information outlined below. However, not all articles are organized thusly. Some will not contain each section, and some will portray it in different order. The outline shown here is a tool you can use to ensure that you include all information necessary to put your study into the broader context of scientific knowledge. Each section will use words and phrases that are indicative of the purpose of the section. Such language is bolded in the example.

I. Topic Sentence

The topic sentence introduces your topic, explaining why it is important.

Purpose: To begin your paper on general terms and engage your reader's interest.

Example: *The regulation of abundance remains a central question in mammalian population ecology.*

II. Previous Studies

A paragraph or so provides a brief, condensed history of the previous studies that your work challenges or develops. Information in this section should be cited.

Purpose: To show that you are well-versed in the topic and have appropriately studied the literature before performing your experiments. Also to provide a context for your work.

Example: *For highly migratory herbivores, such as caribou (*Rangifer tarandus*) and wildebeest (*Connochaetes taurinus*), evidence is mounting that competition for high-quality forage is regulatory (Dublin et al. 1990; Mduma et al. 1999; Messier et al. 1988; Skogland 1985). For these species, migration appears to represent an effective strategy to escape predation. Mobile ungulates and their precocial young may be able to space themselves from their less mobile predators (Bergerud 1988; Fryxell and Sinclair 1988; Fryxell et al. 1988).*

III. Gap in Existing Knowledge

A few sentences between history and background states the gap in existing knowledge of the topic and relate the context to your work.

Purpose: To smooth the movement of your introduction from the general history to information specific to your study. To connect the context directly to your work.

Example: *Further associations between the spatial dynamics and demography of large herbivores might be anticipated. For example, because migratory species may experience seasonal limitations in food, the timing of migration might be sensitive to heightened intraspecific competition for resources (Fryxell and Sinclair 1988). This hypothesis has not been tested. For long-lived mobile mammals, however, understanding such relationships often requires extensive observations in space and time (Mduma et al. 1999; Stirling et al. 1999). Despite recent advances (Bergerud 1996), the dynamics of migratory caribou remain incompletely understood. Long-term studies may help to resolve that shortcoming.*

IV. Introduction and Background of Your Study

Any background information essential to understanding your study should be stated now. Terms unknown to the scientific community are defined here, and information is cited.

Purpose: To help your readers understand and interpret the contents of the paper.

Example: *The Buchans Plateau caribou (*R. t. caribou*) herd (Fig. 1) affords an opportunity for long-term investigation. Migration of the Buchans herd represents a traditional movement of caribou on the*



island of Newfoundland; since the late 1950s it has been intensively studied (Bergerud 1974), along with herd size, population structure, and body size.

V. Hypothesis

The last sentence is nearly always your hypothesis, which is the main objective, prediction, or question you hope to answer. The hypothesis has been underlined in this example for emphasis. There may also be a “mapping” section here, informing the reader of what they will find in the rest of the paper.

Purpose: To pose the question or problem that your study addresses; also to show the reader what to expect in the rest of the paper.

Example: *By augmenting long-term data with more recent observations from radio telemetry and age and sex classifications, **we assembled** a data set of >40 years on the movements and demography of caribou. **We report** on long-term trends in population ecology of the herd. We anticipated, coincident with a 20-fold numerical increase, that the Buchans herd would exhibit signs of density-dependent feedback in growth, vital rates, body condition, and timing of migration, consistent with migratory caribou elsewhere (Bergerud 1996; Couturier et al. 1990; Messier et al. 1988; Skogland 1985).*

Putting it all together: This is what the example looks like in paragraph form.

*The regulation of abundance remains a central question in mammalian population ecology. For highly migratory herbivores, such as caribou (*Rangifer tarandus*) and wildebeest (*Connochaetes taurinus*), evidence is mounting that competition for high-quality forage is regulatory (Dublin et al. 1990; Mduma et al. 1999; Messier et al. 1988; Skogland 1985). For these species, migration appears to represent an effective strategy to escape predation. Mobile ungulates and their precocial young may be able to space themselves from their less mobile predators (Bergerud 1988; Fryxell and Sinclair 1988; Fryxell et al. 1988).*

Further associations between the spatial dynamics and demography of large herbivores might be anticipated. For example, because migratory species may experience seasonal limitations in food, the timing of migration might be sensitive to heightened intraspecific competition for resources (Fryxell and Sinclair 1988). This hypothesis has not been tested. For long-lived mobile mammals, however, understanding such relationships often requires extensive observations in space and time (Mduma et al. 1999; Stirling et al. 1999). Despite recent advances (Bergerud 1996), the dynamics of migratory caribou remain incompletely understood. Long-term studies may help to resolve that shortcoming.

*The Buchans Plateau caribou (*R. t. caribou*) herd (Fig. 1) affords an opportunity for long-term investigation. Migration of the Buchans herd represents a traditional movement of caribou on the island of Newfoundland; since the late 1950s it has been intensively studied (Bergerud 1974), along with herd size, population structure, and body size. By augmenting long-term data with more recent observations from radio telemetry and age and sex classifications, we assembled a data set of >40 years on the movements and demography of caribou. We report on long-term trends in population ecology of the herd. We anticipated, coincident with a 20-fold numerical increase, that the Buchans herd would exhibit signs of density-dependent feedback in growth, vital rates, body condition, and timing of migration, consistent with migratory caribou elsewhere (Bergerud 1996; Couturier et al. 1990; Messier et al. 1988; Skogland 1985).*

This example was taken from Mahoney, Shane P. & Schaefer, James A. 2003. Long-term changes in demography and migration of Newfoundland caribou. *Journal of Mammalogy*. 83(4):957-963.