

This storyboard example is a derivative of the EcoEvoRxiv preprint “Hardwood content impacts the parasitoid community associated with Eastern spruce budworm (Lepidoptera: Tortricidae)” by Christopher J. Greyson-Gaito and coauthors. As such, this storyboard example is distributed under a [CC BY-SA 4.0](#) license.



## Storytelling in Science Writing

### STORYBOARD EXAMPLE - FILLABLE PDF

#### PURPOSE:

This storyboarding example is a storyboard for the EcoEvoRxiv preprint (scientific article) “[Hardwood content impacts the parasitoid community associated with Eastern spruce budworm \(Lepidoptera: Tortricidae\)](#)” by Christopher J. Greyson-Gaito and co-authors. Please use this example to help guide your own storyboarding.

#### NOTES:

- Each column in the tables below corresponds to a single scene (a paragraph) in the scientific article (except for three similar paragraphs in the methods section). Some scenes are in the EXTRA SCENES tables.
- The “Point” section of each scene contains the single idea or message that we want the readers to understand.
- The “Known” section of each scene contains the known information that the reader already knows prior to reading this specific scene.
- The “New” section of each scene contains the new information that logically follows from the known information.
- The known to new technique was not used for the method and results sections because the scenes in these sections are listing information mostly chronologically.

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## ACT 1: INTRODUCTION

Scene 1	Scene 2	Scene 3	Scene 4
Point: There are massive outbreaks of spruce budworm caterpillars.	Point: Hardwood trees could reduce severity of spruce budworm caterpillar outbreaks.	Point: Knowledge gap – does hardwood content impact parasitoid communities?	Point: Outline useful methods to explore parasitoid communities.
Known: Spruce budworm caterpillars cause large forest damage.	Known: Need to find methods to reduce severity of spruce budworm caterpillar outbreaks.	Known: Researchers think hardwoods could help.	Known: DNA barcoding can identify phylogenetic structure. Stable isotope analysis can identify trophic structure.
New: Need to find methods to reduce severity of spruce budworm caterpillar outbreaks.	New: Researchers think hardwoods could help.	New: Not much research on how hardwood content impacts parasitoid communities.	New: DNA barcoding and stable isotope analysis can identify effects of hardwood content on parasitoid communities.

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**ACT 2A: METHODS**

Scene 1	Scene 2	Scene 3	Scene 4
Point: Location of sampling	Point: Sampling methods of parasitoids along a hardwood gradient.	Point: DNA barcoding methods of parasitoids along a hardwood gradient.	Point: NMDS statistical analysis of parasitoids along a hardwood gradient. Phylogenetic structure statistical analysis of parasitoid from 2016. Phylogenetic structure statistical analysis of parasitoids from 1980s.
Known:	Known:	Known:	Known:
New:	New:	New:	New:

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**ACT 2B: RESULTS**

<b>Scene 1</b>	<b>Scene 2</b>	<b>Scene 3</b>	<b>Scene 4</b>
Point: Reporting of NMDS analysis.	Point: Reporting of phylogenetic structure analyses.	Point: Reporting of stable isotope analysis.	Point:
Known:	Known:	Known:	Known:
New:	New:	New:	New:

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### ACT 3: DISCUSSION

Scene 1	Scene 2	Scene 3	Scene 4
Point: Summary of results.	Point: Hardwood content impacted the composition and phylogenetic structure of the budworm-associated parasitoid community.	Point: Overview of group three parasitoid trophic relationships and stable isotopes.	Point: Overview of group one & two parasitoid trophic relationships and stable isotopes.
Known: Hardwood content did impact the parasitoid community associated with spruce budworm caterpillars.	Known: Specific result (summary).	Known: Specific result (summary).	Known: Specific result (summary).
New: Important to examine hardwood trees to understand spruce budworm caterpillar dynamics.	New: Environmental filtering may be impacting the parasitoid community.	New: Group three parasitoids can be used to examine other parasitoid groups.	New: Groups of parasitoids differed in the trophic relationships between balsam firs and hardwood trees.

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### EXTRA SCENES (OPTIONAL)

#### ACT 1: INTRODUCTION (EXTRA SCENES)

Scene 5	Scene 6	Scene 7	Scene 8
Point: Summarize goals, methods, & results.	Point:	Point:	Point:
Known: Researchers need to identify effects of hardwood content on parasitoid community.	Known:	Known:	Known:
New: Parasitoid community was affected by hardwood content.	New:	New:	New:

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**ACT 2A: METHODS (EXTRA SCENES)**

Scene 5	Scene 6	Scene 7	Scene 8
Point: Sampling of parasitoids for stable isotope analysis.	Point: Separation of parasitoids into different groups and preparation for stable isotope analysis.	Point: Stable isotope analysis baseline sampling and preparation.	Point: Statistical analysis of stable isotopes.
Known:	Known:	Known:	Known:
New:	New:	New:	New:

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**ACT 2B: RESULTS (EXTRA SCENES)**

<b>Scene 5</b>	<b>Scene 6</b>	<b>Scene 7</b>	<b>Scene 8</b>
Point:	Point:	Point:	Point:
Known:	Known:	Known:	Known:
New:	New:	New:	New:

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**ACT 3: DISCUSSION (EXTRA SCENES)**

Scene 5	Scene 6	Scene 7	Scene 8
<p>Point: Coupling of balsam fir and hardwood trees could be occurring.</p>	<p>Point: Scale of parasitoid, caterpillar, tree interactions in spruce budworm system.</p>	<p>Point: Concluding remarks</p>	<p>Point:</p>
<p>Known: Groups of parasitoids differed in the trophic relationships between balsam firs and hardwood trees.</p>	<p>Known: Hardwood trees impact parasitoid communities.</p>	<p>Known: Hardwood trees long thought to impact spruce budworm caterpillar outbreaks.</p>	<p>Known:</p>
<p>New: Coupling a useful mechanism to explore in spruce budworm system.</p>	<p>New: Researchers must consider scale when examining spruce budworm caterpillar, parasitoid, hardwood interactions.</p>	<p>New: Hardwood content does impact parasitoid communities but future work must consider scale of hardwood tree placement.</p>	<p>New:</p>