Top Ten Things That Keep Your Good LUMES Thesis Down

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This is a work in progress, aimed at helping LUMES students improve their writing for course papers and theses, based on my experience in reading student papers. I use examples of both common pitfalls and elegant solutions in writing, which have been contributed by LUMES students; I appreciate these contributions. I welcome comments on how to improve this document and make it more useful to students.

Red text indicates examples of problematic writing.
Green text indicates examples of better writing.

1. Top Ten Writing Pitfalls

1. The title is long and jargon-y, and keywords repeat words that are in the title.

The point of keywords is to give interested readers additional ways to find your paper. If your title includes "Deforestation", they will already find that word when searching. So use synonyms or related words in the keywords. Don't repeat yourself.

2. The abstract does not accurately and succinctly summarize the paper itself.

The abstract should be written last and should be like a mini version of the paper. This means you get 1 sweeping introductory sentence ("climate change is important") before you get to your research question/the point of the paper. You get a few sentences for describing your methods- how did you answer your question? At least half of the abstract should focus on results (what did you find? What's new as a result of your work?) and discussion (how can these findings be used? By whom? For what purpose?). End with a sentence about next steps, further research or caveats, policy implications, or areas that need more exploration as a result of your findings.

By the way, do not state "this paper has important implications for policy." Tell us specifically what those important implications are!

Calgary has a new policy that allows volunteer groups to apply for access to land owned by the City to create community gardens. The Calgary Interfaith Food Bank is a stakeholder in the policy. This study aims to determine if a proportion of the produce from the already existing and newly created community gardens in Calgary could make a useful contribution to donations at the Food Bank. This was done by finding out if there is a need for fresh produce donations at the Calgary Food Bank, and if there is there enough space in the already existing or newly built community gardens to make a notable contribution to the food bank. It was found that there is a need at the for fresh produce donations at the food bank and that if only 3% of all community garden land in Calgary grew food for the food bank then they could more than double current fresh produce contributions. This would be significant because it demonstrates that there is a more efficient, community oriented and sustainable way to run food banks.

3. The introduction is too long.

In my mind, this is often the cardinal sin of student research papers. I suggest a guideline of 15% of your total word count, max. Reference the relevant literature, set up

your question, and get the hell out. Do not drag the reader down every marginally interesting side-path that you yourself wandered down in the course of researching your question. Make it look like there is a straight line between the background information, your question, and what you did to answer it, even though (inevitably) there wasn't. Ask yourself: Does the reader need to understand this in order to appreciate what I've done? If not, don't put it in your paper. Save the machinations and false starts of your winding research process for your friends over a beer.

If you follow the format discussed here, you don't need an explicit statement of the organization of the paper like this one:
The paper discusses the methods of research I used to answer the first sub-question, followed by a presentation of my results and framework synthesis. In the discussion, I interpret the results of both sub-questions in order to draw out policy recommendations.

Note that you should not sit down and write an original research paper from start to finish. It is better to write up Results first, get clear on what your findings are (including developing relevant figures), and then write the Introduction that sets up these findings and provides the information needed to interpret them. Also, if you run out of time in writing, better to have a less-than-stellar Intro and a solid Results and Discussion, as these are the core of your paper.

A note about how to refer to literature: Your job is not to tell the reader that relevant literature exists, or that there is a lot of it, and list a lot of papers. Rather, it is to *report the key findings* from this literature, and demonstrate its relevance in identifying the research gap you will fill in this paper. Thus, rather than telling us that:
Literature attesting to a relationship between land use and water quality changes in watershed ecosystems is abundant (Lee et al., 2009; Seeboonruang, 2012; Tetreault et al., 2013).

It's better to say:

Previous work has found that conversion from forest to agricultural land resulted in changes in nearby waterways including 40% increases in nitrogen and phosphorous (Lee et al., 2009), doubling in turbidity (Seeboonruang, 2012), and increased temperature of over 2°C (Tetreault et al., 2013), all of which contribute to decreased water quality.

Note that this second sentence specifies the direction (increase, rather than decrease) and strength (amount) of the relationship. It is not specific enough to state that "a relationship exists"; your job is to tell us what that relationship is. Also note that each specific statement has been attributed to its original source, so we know that we should go to Lee for nutrient data but Tetreault for temperature (in this case, I made up these specific data to prove a point, so don't expect these papers to have these data!).

4. **There is no clear, answerable research question.**

What are you doing? Why should we care, and read further? Tell us in a clear paragraph at the end of the Introduction (so clear that it says, "This paper will address the question, X" or "The goal of this paper is to address the question of X"). Please, put this paragraph within the first 5 pages of your thesis. Don't make the reader wade through 15 pages of background without any idea of how or why it's relevant. And for goodness sake, please make your research question answerable. "What is sustainability?" or "How are water and climate related?" are not tractable research questions. It has to be focused enough to be reasonable to address in the space that you have, but framed to be broad enough to be of interest to the community outside of the lower Menona River Basin where you worked. Hot tip! The research question(s) can (and often should) be used to structure your whole paper. For example, if you have three RQ's, you can use these as sub-headings in all subsequent sections, and say what methods you used to answer RQ1, what results you found for RQ1, etc.

5. **The Methods are way too short or way too long.**

This is where you tell the reader HOW you answered your questions. Specify your data sources. (And by the way, "data" are plural; so THESE data WERE collected, not THIS data WAS collected.) Where did they come from? How were they selected? On what basis were any excluded? How were data analyzed (coding, numerical summaries, statistics, etc.) did you use, and why? Don't give us file names, step by step operations, or long statistical tables. An intelligent person familiar with the basics of your discipline should be able to recreate (replicate) your work using the Methods section.

Also think about data archiving. You should make it possible for someone to access and replicate your work exactly, by making your data reasonably clean and accessible to others through an online repository, or at the very least being willing to email them to anyone who asks.

6. **The Results don't focus on Results.**

This is where you tell us what you found, what the world would not know if you had not done your research. It is by far the most important section of a paper. Be descriptive and concrete. (For example: Four times as many men as women reported receiving benefits from the program.). Don't speculate on **why** these differences occurred- that belongs in Discussion.

A good Results section has a strong connection between the text and the figures. A reader could get the key ideas by seeing only the text or only the figures, but having

both reinforces and provides evidence for conclusions. Work really hard to tell the main message in the figures (and they should be figures, not tables, unless you have a really good reason). Make the text compliment and explain the figures, not repeat them. Don't just reference a figure without explaining it in the text, and expect the reader to do all the interpretation. Text in the Results should include **specific** findings (numbers, percentages, differences, range between high and low observations, etc.). (However, be mindful of significant figures, and put numbers in the simplest possible form for a reader to understand. It makes more sense to talk about 1.3 billion barrels of oil, rather than 1283158.084 thousand barrels of oil. Two decimal places may be appropriate when talking about prices (€3.33 for a kilogram of organic apples), but is not appropriate when talking about the global area of marginal lands, which can't possibly have been measured to the accuracy of 0.001 hectares.

Here is a good example of writing up results:

A strong majority (81% of respondents) stated that the decision *(…to join the conservation program)* was made in a community assembly, and the majority (66%) also stated they participated in the decision making process…. However, less than half (42%) of respondents reported that incentives were managed democratically in an assembly; 31% claim that the leaders are managing the incentives, and almost a quarter of participants do not know how incentives are managed.

An example that could be more clear:
"As shown in Figure 6, 85 percent of responding participants regard high quality as an important attribute when it comes to local food. The notion that local food supports the local farmer is regarded as important or very important by 83 percent. 78 percent think it´s important that there are no artificial substances present in the product and also that the product is environmentally friendly. As for less carbon footprint, 72 percent regard it as important whereas 71 percent emphasise on fewer food miles. Approved production-methods are regarded as important or very important by 67 percent of responding participants and 60 percent regard it as important or very important that the price is comparable to other non-local food. 44 percent emphasise on the product to be ready for consumption and 43 percent similarly regard convenient packaging as important. "

The most important attributes associated with local food by survey participants were high quality (85% rated as important or very important), supporting the local farmer (83%), and no artificial substances and environmentally friendly (78% each; Figure 6). Attributes such as lower carbon footprint or food miles and approved production methods were ranked of intermediate importance, and price, packaging, and consumption readiness were least important (Figure 6).

Always discuss groups or treatments (e.g., youth vs. elders, men vs. women, structure vs. function) in the same order, from the very first time you introduce/define them, to reporting their results, to interpreting them, to the order they are presented in the

figures. Make comparisons (50% higher, three times lower) in words as well as the numbers. Incorporate statistics smoothly.

Avoid phrases like, "… X has an effect on Y." Specify what the effect is! "X doubled Y."

"…the Victorian 'Black Saturday' bushfires in 2009 had a direct impact on the Victorian wine industry."

Better:
"…the Victorian 'Black Saturday' bushfires in 2009 resulted in a loss of 20,000 tons (35% of the average harvest) for the Victorian wine industry."

Distinguish for the reader the more and less important points. Note the key actors, top consumers, etc. If a difference is statistically significant, but small (usually less than 10%), it probably does not have a big impact.

Note that you cannot start a sentence with a number:
"71 percent perceived local food to be healthy and safe."
If you must, spell out the number in words:
"Seventy one percent perceived local foods…"
Or, even better, condense and put key findings together, interpreted in words, and backed up by numbers referring to figures:
"The most important characteristic of local food was that they were perceived as locally produced (74%), healthy and safe (71%), and Icelandic (68%)."

7. The Discussion introduces lots of new material.

This is where you interpret and analyze your findings, not where you define a term that you have been using for 10 pages already. The purpose is to take your specific findings and interpret them in a broader context. Make your argument about how and why things are the way that you observed, using strong logic and references to the literature. You may want to introduce or apply a theoretical framework, or reference similar phenomena reported in other contexts in the literature (or conflicting phenomena in similar contexts, and speculate on the reasons for the difference!). Be concrete and specific (do not say, "this gives interesting insight into…X"; rather, state the insight or conclusion you draw!

Here is an example of a Discussion section that corresponds to the Results presented above. Note that it includes an interpretation ("…meaning that…") based on data presented in Results.

Our results confirm that the basic democratic structures that give community members the possibility to participate in decision making exist in the form of assemblies, the formal places where all major decisions are taken and where power is most directly

exerted (Table 2). However, although a majority participated in the meeting where the decision to join *(the conservation program)* was made, a minority knew about the investment plans, and an even smaller number of people participated in determining how to use the incentives, meaning there is a lack of inclusion and participation when actual decisions about using incentives are made (Table 2). Participants commonly felt that the process is not inclusive enough, as captured by the statement from a 46-year-old male respondent: "*(The conservation program)* only works for the leaders. The people don't know what it is."

8. **The figure and caption headings are lame.**

"Figure 5" is not a figure heading. You need to explain the axes, units, and the data being shown- where did they come from? Your field experiment, the literature, a meta-analysis, a combination of other sources? A figure heading should be between 3-10 sentences, which clearly explain what the figure shows in plain English. A reader should be able to look at just the figures and their headings, and get a clear (though not 100% complete) picture of the main messages of what you did and what you found (i.e., the most important findings of your thesis). This means that it's important to have a figure of some sort for each of your most important results.

That said, if it is important enough to warrant a figure, it is certainly important enough to warrant at least a paragraph in the main text where that figure is discussed and interpreted. This is not adequate interpretation in the text: "The levels of timber being utilised for each product can be seen in the table below." What are the levels? Which one is highest/lowest, and why is this important for your research question?

Each figure needs its own sequential number, and must be referenced in the text (i.e., it is not appropriate to have Figure 7 in the middle of a bunch of text, but if the reader read only the text, there is no reference to Figure 7). Tables are also numbered sequentially, and each table needs its own number. (This may mean that the text refers to Figure 7 but Table 1 in the same paragraph, because 6 other figures have already been introduced, but this is the first table.)

However, figure headings should focus on what's in the figure; there should be no refs, except to cite the source of data presented in the figure if necessary. Save additional explanation, context for main text. While the following text is very good, only the first sentence belongs as a figure heading, which describes the data pictured. The remaining text (including any additional sources) belongs in the text.

Top fifteen coffee exporters 1990-2004 in 60-kg bags (Source: Marsh, 2007). Vietnam's coffee industry has grown dramatically in the last twenty-five years, exhibiting an average growth rate of 26% (Kerr-Ritchie, 2006; Marsh, 2007). Vietnam is the largest exporter of Robusta, and is the second largest coffee producer, second to Brazil (Kerr-Ritchie, 2006). Vietnam consumes 60,000 metric tons internally, meanwhile produces 10% of the worlds coffee supply (Marsh, 2007).

Use words in the text to summarize the key trend or highlight the most important pattern in data that you present visually. Do not use text to tell the reader the ingredients that went into making a figure; this belongs in the figure heading.
Problematic text: "The total number of 702 million hectares of degraded and abandoned cropland distributed among Africa, China, Europe, India, South America and the U.S. are distributed according to the following graph in percentages and the table below mentions marginal land availability in millions of hectares."
Better paper text: "Marginal lands are approximately equally distributed between South America, Africa, and China, with substantial areas in India and Europe as well, and only 10% in North America (Figure 1)."
Better figure heading: "Distribution of 702 million hectares of degraded and abandoned cropland between the six regions reported by Ximing (2010)."
However, make sure that, to the greatest extent possible, all the information needed to interpret the figure is present in the figure itself, rather than the heading. Don't make the reader dive into the heading to find out what units are being expressed (that belongs in table columns or axes labels).

Also, figures should be referred to in parentheses in the text after you have explained what their main point is. They should not be the topic of a sentence, because the main point is the idea that the figure represents, not the figure itself.

- Wrong: "As Figure 2 shows, the majority of respondents were not aware of the conservation incentive program."
- Right: "The majority of respondents were not aware of the conservation incentive program (Figure 2)."

9. The figures are lame.

They are cut and pasted from another source and are blurry (particularly inexcusable for tables with text- rewrite the dang thing!), with tiny font, confusing legends, generally impossible to read; or they lack a sensible ordering (from high to low values, most to least important rather than alphabetical) and adequate annotation of axes, symbols, etc.

10. The scholarly literature is not properly referenced.

Give credit where credit is due; make sure you cite the original source of ideas. It's your job to track down and read the original claim to make sure you agree with how it's represented. So do not say, "Y as cited in X"; that's just lazy. Read X and tell us yourself what X says, so that you stand by your claims and so that the reader knows exactly where to go to get more information or look something up, and does not have to chase a paper trail to identify sources.

You don't need to cite every source that has ever pontificated on your topic. Do the hard work of sorting through the masses, and cite the most important and relevant ones. The majority of your literature should be cited in the Introduction. You can bring it back in the Discussion to link specifically with your results, or bring up a framework or some data that are closely related to your findings and help in their interpretation, but the Discussion is not the time to bring in dozens of new sources.

If there is disagreement in the field, be clear about this and summarize it for your reader: "There are two main views on sustainability. The first, promoted by X, Y, and Z (*dates*), holds that it is a pile of crap. The second, supported by A, B, and C (*dates*), posits that it is the only means of survival of life on Earth. In this paper, I argue for a synthesis of these two views through Q…"

Quotations of the literature should be used **extremely** sparingly (quotations from primary sources, i.e. people you interviewed, are a different matter; they are part of your original data). Nearly all (perhaps 99%) of the time, you should summarize what other authors have claimed or shown in your own words, with the appropriate citations. This makes your paper easier to read as it has a consistent voice (yours). You should only quote short phrases ("climate-proofing") or at most, sentences, directly, and this should be done only when the author has said something so novel, juicy, original, and brilliant that you can't possibly hope to say it so well (or in the case where the author is making a point with which you disagree, and you want to put forward their argument in order to tear it down). Otherwise, do your own writing. There is no reason to have several sentences or a paragraph of text from someone else's work in your paper, unless your paper is about an analysis or critique of their paper itself.

<u>Defining Terms:</u>
According to FAO the definition for marginal land is the following: "Land having limitations which in aggregate are severe for sustained application of a given use. Increased inputs to maintain productivity or benefits will be only marginally justified. Limited options for diversification without the use of inputs. With inappropriate management, risks of irreversible degradation (FAO, 1999)."

"The phenomenon of large-scale land acquisitions can be regarded as a network. According to Merriam Webster online, the most general definition of a network is that it is an interconnected or interrelated chain, group, or system."

Also, don't use "ibid" unless you're writing for a law review journal, which you're not… so don't use it. You should basically cite every sentence- work to make your writing concise so that this is not repetitive for the reader. If you have a lot to quote from one source, you can make it clear that all these ideas come from one source by putting it up front and then bookending it: "Smith et al. (2001) found XYZ… showed XYZ *(a few*

sentences only about this topic/source)… etc. Further, they concluded that XXX (Smith et al., 2001)."

Citation Format

Please use correct citation format. The following silly mistakes are common, and they distract your reader (and grader, and opponent…) from focusing on your argument.

The following are cool:
The Earth is round (Smith, 2011).
As Smith (2011) showed, the Earth is round.

The first version is probably preferable, because it puts the most important part of the sentence first (see below); it also uses fewer words. The main reason to use the second form is to vary your writing or to highlight the particular contribution of Smith in this field.

The following are not cool:
(Cassidy, et al. 2013,Gleick 2003,Waggoner and Ausubel 2002)
The Earth is round. (Smith, 2011) [the period goes after the citation: "…round (Smith, 2011).]
Anisimov, et al. 2001 [correct: Anisimov et al., 2001]
Anisimov, et al,. 2001 [correct: Anisimov et al., 2001]

Moser and Ekstrom highlight a number of barriers to the effective implementation of climate change adaptation measures (Moser & Ekstrom, 2010). (don't repeat citations)

As Hungate (Hungate, 2011) says… (fix EndNote to leave author out of citation if you are using this format, by right-clicking and saying leave out author)

"Thorpe's work "Contributions of Inuit Ecological Knowledge to Understanding the Impacts of Climate Change on the Bathurst Caribou Herd in the Kitikmeot Region, Nunavut" aims to help fill the gap in understanding climate change…" (do not quote the title of scientific papers- focus on their content.

Be careful to attribute ideas correctly. If you are joining different ideas from different sources in one sentence, put the citation immediately after the idea. For example:

"Since meat production is one of the major contributors to global environmental degradation, this paper examines how increased food production from the sea via open-ocean aquaculture practices can offset pressure on terrestrial (meat) production (Asche, 2008; Tuomisto & Mattos, 2011)."

This implies that both Asche and Tuomisto & Mattos state that meat production is a contributor to global degradation, and that aquaculture can offset this degradation. If

Asche talks only about degradation, and Tuomisto & Mattos talk only about aquaculture, the correct format is:

"Since meat production is one of the major contributors to global environmental degradation (Asche, 2008), this paper examines how increased food production from the sea via open-ocean aquaculture practices can offset pressure on terrestrial (meat) production (Tuomisto & Mattos, 2011)."

2. Bonus Tips on Writing:

1. Put the most important idea first.

This should be the case at every level in writing: The abstract summarizes the main points, the headings organize the key ideas, paragraphs start with a clear topic sentence, and the most important idea in a sentence goes first. This keeps the reader oriented to the main flow of the argument, so that they know what they're reading about.

Each paragraph should have one main idea, which is first expressed in the first sentence. Everything else in that paragraph should relate to that sentence and support or develop this idea in some way. The minimum paragraph size is about 4 sentences. If you have one lonely free-standing sentence, it does not constitute a paragraph. Find a paragraph where it belongs and modify so it fits there, or write the rest of the paragraph to develop this idea.

Sentences should also be about one main idea, which appears at the beginning rather than the end of the sentence. For example:

Here the reader does not know why we are talking about these disparate elements:
Local stakeholder participation, free, prior and informed consent and the equitable distribution of benefits, are core safeguards proposed by the United Nations REDD programme to ensure positive social benefits from REDD+ projects.

Here we know the purpose of the sentence, and are oriented to why the following details are important.
To ensure positive social benefits from REDD+ projects, the United Nations REDD programme has proposed core safeguards, including local stakeholder participation, free, prior and informed consent, and the equitable distribution of benefits.

Here's a good paragraph that needs a topic sentence:

According to the World Bank (as cited in Marsh, 2007), 85% of the country's coffee farms are no bigger than 1 hectare (ha), and only 1% are larger than 5 ha. Smallholder farmers mainly operate private run farms; 450,000 small farming families comprise 95% of the country's coffee production (Marsh, 2007). The ethnic minority groups that remain in the Central Highlands region participate in coffee production, primarily adhering to traditional farming strategies and communal land rights (Marsh, 2007). According to Marsh (2007), the other 5% of the country's coffee production is carried out by state run farms. Collective farming systems and State Owned Enterprises (SOEs), which took care of processing, fertilizer inputs and irrigation, rural credit, marketing, and export, are in the process of liberalization (Marsh, 2007).

Something like, "Most coffee production in Vietnam comes from small estates owned by smallholder farmers" would help give the reader context for all these supporting details.

2. **Use active voice.**

Passive voice is boring to read, and it needlessly inflates your word count. You can usually completely eliminate phrases like "X has been shown/demonstrated/applied/taken." Simply say "X (citation)". Eliminate the construction "It has long been known… It has been widely said… it is well understood that…"

"It has been said that climate change is a major threat to food security."
"Climate change is a major threat to food security (Foley et al., 2011)."

If the actor who has done the action is important, put them directly in the sentence:

"Core safeguards have been proposed to ensure…"
"The United Nations has proposed a set of core safeguards to ensure…"

Writing guidelines using first person:
http://www.oup.com/us/samplechapters/0841234620/?view=usa

3. **Write in the past tense.**

The research is now complete and you are reporting the results. Therefore, "the three villages studied were selected by…" , not "the three villages are…" data were "collected," not "collect," etc.

Avoid excessive use of vaguely referring to other parts of the paper ("As mentioned earlier… as discussed later…")

4. **Write clearly and directly.**

Make it your goal to express your ideas using as few and as simple words as possible.

5. **Educate yourself on the proper use of these commonly mis-used words:**

Quick list that hits the highlights:
http://litreactor.com/columns/20-common-grammar-mistakes-that-almost-everyone-gets-wrong

- Subsequent vs. following.
- Which/that. http://grammar.quickanddirtytips.com/which-versus-that.aspx

- But/however/rather/instead/or else/either/although
- Between/among
- Affect/effect.

"These scenarios could be exacerbated by the El Niño Southern Oscillation, which itself could be effected by global warming…"

- Use of the word "research". This is a verb, "to research". It sounds weird to say, "In this research, I aim to…"- use "paper" or "thesis," which are nouns. If you're referring to scholarly literature, it's redundant to call it research (for example, do not say, "Jones et al. (2011) found in their research that…"; simply say, "Jones et al. (2011) found that…"
- i.e. vs e.g. see http://grammar.quickanddirtytips.com/ie-eg-oh-my.aspx
- Increase/decrease, raise/lower, higher/lower

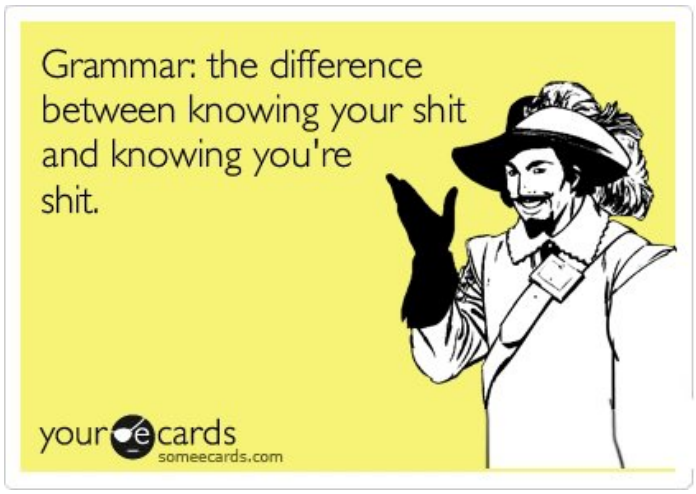
6. Use Consistent Spelling Conventions

Choose either British or American English and stick to it; don't mix the two. Examples of British/American spellings:

- Centre/Center
- Programme/Program
- Colour/Color
- Analyse/Analyze

7. Punctuate! It! Right!

"Punctuation is a courtesy designed to help readers understand a story without stumbling." – Lynn Truss.



These simple marks on paper (or screen) are designed to help your reader understand you better. Please pay attention to them. If they are incorrectly used, they distract your reader and detract from your brilliant argument.

a. Capitalization. In English, we capitalize proper nouns (specific place names, such as cities and countries; days of the week; etc.).

b. You need to use commas more often than you think. Read a sentence out loud. Every time you pause or take a breath, put a comma there. See? More often than you thought. The comma doesn't just save clarity, it saves lives! Compare: "Let's eat Grandpa!" and "Let's eat, Grandpa!"

Here's a phrase that could use some punctuation:
…provide little benefits to local people and even destroy livelihoods in addition it will put pressure on land resulting…

However, beware the misplaced comma:

c. You need semicolons (;) and colons (:) less often than you think. Better to write short, clear sentences, rather than trying to string together a whole bunch of clauses. But if you must: a semicolon is used to separate two main clauses, which could both be independent sentences, but are closely connected. A colon is used to alert the reader that a list is coming or to introduce or define something. When in doubt, make it a separate sentence. For a more thorough explanation: http://grammar.quickanddirtytips.com/semicolons.aspx

- Note that you cannot start a sentence with "And". This is an indication that you need some form of punctuation (probably a comma, possibly a semicolon) between the current phrase and the previous.

Not cool: (all of these should be : instead)
…and the focus for this paper; food insecurity.
"The main research question is; how does…"
"depending on a number of factors, including; A; B, and; C."
"An example of such a measure is X; which aims to Y…"
"…using three sub questions;…"

Cool:
Government investments in land acquisitions are not only driven by food security issues; factors like foreign investment opportunities, biofuel production,… "
"… the focus of this paper: food insecurity."
"An example of such a measure is X, which aims to…"

d. Hyphens. You need more of these than you think, too. In short, use hyphens when you are using two words as a compound adjective to modify a noun. This happens all the time. See this explanation: http://grammar.quickanddirtytips.com/grammar-hyphens.aspx

   Correctly used hyphens:
   - Climate-related events.
   - community-based field research
   - well-developed high-producing agricultural industries

e. Apostrophes indicate possession, where as "s" indicates plurality.

   - "the regions fur trade collapsed" means that the fur trade in many regions collapsed. If talking about the fur trade belonging to a single region, say "the region's fur trade."
   - individual wineries brand- wrong! "individual winery's brand"
   - …it's water access (this means, it is water access, rather than, the water access belonging to some entity)
   - climate change and it's potential impact on their business
   - benefited individual landowner's more than collective landowners (extraneous apostrophe)

f. Double vs. single quotations. Double used to quote someone (which should be done exceedingly sparingly, see below) or refer to a specific book, movie, etc. Single quotations are used for quotations within quotations (i.e., almost never). See: http://grammar.quickanddirtytips.com/single-quotes-versus-double-quotes.aspx

Don't put newly introduced phrases in either single or double quotations to indicate specialized terminology without defining it.
"As global 'wine gluts' put negative pressure on crop values…"

Rather, keep jargon to a minimum. When it's essential, define the term as it's first used, so the reader can follow the development of your logic.
As the global wine market is flooded with an oversupply of high-quality wine, leading to lower crop prices for producers (the "wine glut"), …"

g. Spacing. Sentences should be separated by one space, not two. Why? I'm glad you asked! See:
http://www.slate.com/articles/technology/technology/2011/01/space_invaders.html

h. Acronyms

- Useful if they represent a long, technical, frequently used phrase. In this case, they should be written out at first use, then defined in parentheses; subsequently they can be referred to by the acronym.

"The El Niño Southern Oscillation (ENSO) poses serious risks for agricultural production worldwide…"

- Not useful for common words or phrases, where those words or phrases should be used instead.

"The Government of Vietnam (GOV) fostered this dramatic growth by controlling prices for basic commodities… Alongside Doi Moi the GOV established a series of land reforms…"

i.

- Bullet points.
- Don't belong in a paper.
- Use prose.
- If you have a long list (more than three or four items),
- consider a table or box.

3. Useful Writing Resources

General science writing:
https://www.americanscientist.org/issues/id.877,y.0,no.,content.true,page.1,css.print/issue.aspx

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