Poster Session
- Engage a wide audience
- Builds personal/professional connections
- Fun and social

Poster Itself
- Prop for explaining your work
- Should be interesting
- Focus on your presentation

http://www.swarthmore.edu/NatSci/cpurrinI/posteradvice.htm
Poster Presentations
- think of poster as a prop
- design it with illustrative visuals and flow in mind
- temptation is to put all content on the poster
- far better to speak the words over images

Impose strict word limit - just 300!!
Poster Presentations - 300 word limit
- this means you have to be focused
- need to talk through poster in a relaxed 2 minutes
- can only tell one portion of your thesis
- need to tailor the framing and vocabulary to the audience

Broad context & No jargon
My research project aims to elucidate the allosteric crosstalk mechanism in the ligand-binding domain of a leukocyte integrin αXβ2, called αX I-domain. In this study, I characterize the affinity of the αX I-domain to divalent cations, iC3b (αXβ2 ligand), and a small molecule antagonist-simvastatin, respectively. The divalent cation is strictly required for the ligand-integrin interaction.

SUMOylation and deSUMOylation balance is crucial for normal cell physiology. Changes in expression of numerous SUMO proteases (SENPs) have been stated in different cancer subtypes. The novel SENP7 variant SENP7S is the predominant SUMO protease in normal mammary epithelia; however onset of precancerous ductal carcinoma in situ (DCIS) reduces SENP7S significantly and stays low in all breast cancer (BCa) subtypes. The SENP7S isoform's contribution to carcinogenesis is unclear. Our research shows that the novel SUMO protease SENP7 Short isoform regulate the post-translational modification (SUMOylation) level of Beta-catenin signaling pathway to regulate normal mammary epithelia homeostasis. In our study we showed the loss of SENP7S would potentiate cell proliferation and transformation. Thus SENP7S is critical for maintenance of normal mammary epithelia.
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What is the point of this paragraph? What have the communicated?

Think about your audience and the point you want to convey.

Choose words that will communicate meaning.
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Think about your audience and the point you want to convey.

Choose words that will communicate meaning.

Think about your audience and the point you want to convey.

Choose words that will communicate meaning; jargon is meaningless.
My research project aims to elucidate the mechanism by which protein activity is altered through binding in particular region of the molecule, called in the a X I-domain. Here I characterize the attractiveness of the X I-domain to two positively charged ions, which are required for the interaction that alters protein shape and activity.

Abandoning the jargon means you can convey meaning to your audience.

Even if this fails, at least they know you tried, and you can answer their questions.
Poster Presentations

1) Content and Layout
   a) template sections
   b) target your audience
   c) knowing what you want / what to leave out

2) Better Layout
   a) think outside the boxes
   b) flow
   c) color
   d) image considerations

3) Academic Weirdos & Presentation Managing

4) Presentation Development & Content Delivery
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research problem</td>
<td>Identifies a question or problem that needs to be addressed. Piques audience members' interest and investment in the topic.</td>
</tr>
<tr>
<td>Proposed Solution</td>
<td>Clearly articulates the proposed solution or answer</td>
</tr>
<tr>
<td>Results/Findings</td>
<td>Important results or findings are clearly identified and communicated. The presenter explains clearly the implications of results or findings.</td>
</tr>
<tr>
<td>Novelty</td>
<td>Clearly articulates the novelty of the work.</td>
</tr>
<tr>
<td>Poster Organization</td>
<td>The poster is well organized. Has considered how people read posters.</td>
</tr>
<tr>
<td>Poster Graphics</td>
<td>Attempts to make most information graphical. Minimal text used to efficiently convey results and important findings. Fonts, colors, and graphics are not distracting.</td>
</tr>
<tr>
<td>Presentation Skills</td>
<td>The student is able to answer all questions and lead the audience member through the project. The student conveys intellectual curiosity, confidence, energy, and excitement.</td>
</tr>
</tbody>
</table>
Title, formatted in sentence case (Not Title Case and NOT ALL CAPS), that hints at an interesting issue and/or methodology, doesn’t spill onto a third line (ideally), and isn’t hot pink

Colin Purrington
666 Teipai Street, Posterville, PA 19801, USA

Introduction
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Materials and methods
Few people really want to know the gruesome details of what you’ve been up to, so be brief. And be visual. Use a photograph, drawing, or flow chart if possible; supplemented with only a brief overview of your procedure.

If you can somehow attach an object, an iPad, etc., that can involve viewers in an active way, do so. Refer to the companion website (see bottom right section) for more ideas if you are creatively challenged.

Results
The overall layout in this arena should be visually compelling, with clear cues on how a reader should travel through the components. You might want a large map with inset graphs. Or have questions on left and answers with supporting graphs on right. Be sure to separate figures from other figures by generous use of white space. When figures are too cramped, viewers get confused about which figure to read first and which legend goes with which figure. Clumped content just looks bad, too. The big thing to remember is that a Results section on a poster does not need to look like a Results section on a manuscript, so feel free to be creative.

If you can add small drawings or icons to your figures, do so — those visual cues can be priceless aids in orienting viewers. And use colored arrows or callouts to focus attention on important parts of graphs. You can also put handwritten notes next to arrows to tell reader what’s going on that’s interesting in relation to the hypothesis test. E.g., “This outlier was most likely caused by contamination when I sieved into tube.” Also, don’t be afraid of using colored connector lines to show how one part of a figure relates to another figure.

Figures are preferred but tables are sometimes unavoidable, like death. If you must include one, go to great efforts to make it look professional. Look in a respected journal and emulate the layout, line types, line thickness, text alignment, etc., exactly. A table looks best when it is first composed with Microsoft Word, then inserted as an Object. Use colored text or arrows to draw attention to important parts of the table.

Paraphrase format is fine, but so are bullet lists of results:

- 9 out of 12 brainstem attack rats survived
- Brainstem attack rats are less
- Control rats completed maze faster, on average, than rats without brains

This sample results section is way too wordy, in case you were wondering.

Do treatments differ in their effects?

Do As and Bs respond differently to X?

Are medians of treatment A and D different?

Acknowledgments
We thank I. Grier for laboratory assistance, Mary Juma for seeds, and Herb Isdale for greenhouse care. Funding for this project was provided by the Department of Thinkology. If you want to color your poster with annoying logos, shrink them down so that they can fit inside this area without smudging text too much. Note that people’s titles are omitted — titles are TMI.

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Main Research Title (font 90; black; bold)

Sub title- Authors (font 50; black; bold)

Header (font size 50; red; bold)

Content (Trebuchet MS; 36; black; no bold)

UH has provided guidelines regarding the font, size and color pattern
Main Research Title (font 90; black; bold)

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Header (font size 50; red; bold)

Content (Trebuchet MS; 36; black; no bold)

UH has provided guidelines regarding the font, size and color pattern
Title of your paper goes here

Your Name, Coauthors Name, Department & College

I prefer block left rather than center justified; it is more efficient and looks better
Title of your paper goes here
Your Name, Coauthors Name, Department & College

Introduction
Here you provide context to the your work. There are a few goals. First, engage your audience. Second, provide context and motivation for what follows. Together, this means you need to open with a big idea and then flesh it out enough so that the intelligent layperson with little background in your topic understands what the broad area of study is and why it matters in non-technical, broad terms.

You close this section with your study hypothesis, question, and or predictions, set off by a paragraph break.

It is likely helpful to provide a figure that illustrates and explains the conceptual foundation of your thesis, the shape of some critical structure, etc. It should be very easy to understand and visually compelling.

The introduction sets the stage for all that follows using broad strokes and no jargon.

Easiest if you open with the very broad picture, then to what is known/ general pattern and finally transition to what is not known, some paradox in the topic, etc.

Close the introduction with a concise statement regarding the hypothesis under consideration, the question this portion of your thesis addresses, etc. Phrase as something like ‘Here I describe work that tests the hypothesis / seeks to discover / aims to describe … ‘ with a focus on what has been set up in the introduction.
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Methods (or Approach etc)

Here you explain how you investigate the problem. The temptation is to use lots of technical text. In reality, however, you want to keep the text to a minimum and use images, flow charts, diagrams with key elements labeled, etc.

You might have a new paragraph on the overall approach conceptually, another on protocols or detailed description of some aspect of the method. If you are doing something clever or innovative, highlight that and its value here.

Finally, you can close with your statistical tests, comparisons among (treatment) groups you intend to make, etc. Importantly, you should provide something about how different outcomes will be interpreted. This content is probably best shown in figures (incorporated into the image described in paragraph two above) or can be done with words.
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Put the findings panels in an order that lets you describe them most effectively.

Title each with the main point of the figure

Do not clutter
Title of your paper goes here

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Results (Findings etc)

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Conclusions / Future Directions

Recap the main motivation for the study and state your findings in this context. Note any possible problems with the interpretation and propose a solution. Talk about future directions, refinements, etc.

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Funding agencies, special access, etc.
Template Advantages?
Template Advantages?

- Poster uniformity
- Easy
Template Problems?
Template Problems:

- Fails across disciplines
- Boring
- Wasted real estate
- Ugly
- FAR too much text (max is 300 words)
- Will not compel a good presentation

Bad Prop
Conceptual overview of a statistical approach to biological problem

**scaffolder**

Microbial genome scaffolding software

http://next.gs

Michael D Barton*, Hazel A Barton
Northern Kentucky University

---

**Requiring Finishing**

Join contigs together
Trim nucleotide sequences
Add PCR sequences

**Finishing Errors**

**Human Error**

Manually joining contigs and trimming sequences can introduce errors

**Unreproducible**

Manually editing a sequence can't be repeated by anyone else

**Hard to Change**

Large blocks of nucleotide sequence are hard to update and determine the source contig

---

**Scaffold File**

1. Sequence
   - Source sequences
2. Unresolved
   - Length 10
3. Sequence
   - Source sequence
   - Start 30
   - Stop 1000
   - Reverse True
   - Orientation
4. Source insert 1
   - Start 8
   - Stop 100
   - Reverse True
   - Open 200
   - Close 250
5. Source insert 2
   - Open 500

**Putative Scaffold**

**Reproduce**

Remove human-error and scaffolds can be reliably reproduced from the same data

**Separate**

Separate sequence from the scaffold organisation and preserve the original assembly data

**Edit**

Easier to edit the scaffold file compared with raw nucleotide sequence

**Visualise**

Provides an overview of the genome construction and allows easier comparisons of differences in scaffolds

*Email: michaelbarton.me.uk*

---

Michael Barton sees posters as ways of starting conversations; he uses light, engaging visuals, symbolic language and a minimum of text.
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Michael Barton sees posters as ways of starting conversations; he uses light, engaging visuals, symbolic language and a minimum of text.

Key is to understand what you need to relay your ideas, and to organize this so you can use a poster as an effective prop for your presentation.

This means you have to

i) tailor your pitch to your audience and

ii) know what you want them and you to get out of the session.

http://www.bioinformaticszen.com/post/preseting-software-on-a-poster/
Putting it all together

Decide on content by talking to friends outside your field

Figure out how to explain your work and keep their interest in two or so minutes

Keep track of your illustrations and put on poster

Practice with projector before printing

Hardest part is knowing what to leave out
Overview
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Approach & Findings
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Conclusions & Future Directions
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Funding agencies, special access, etc.
The Evolution of Complex Phenotypes in Insects

**Overview.** Complex phenotypes evolve through poorly understood interactions between external natural selection, development, physiology, and genetics. Insect wings are excellent structures for the study of complex phenotype evolution because variation in wing morphology affects fitness and is amenable to ecological, morphometric (see panel at right), developmental, and genetic study. Here we describe experiments exploring the roles of internal constraints, external selection, and genetic architecture in wing phenotype evolution.

**PCA Primer.** Principal Component Analysis (PCA) reduces datasets with large numbers of variables by producing new composite variables (the PCs) based on patterns of trait covariation. These PCs are the complex traits subject to analysis. In the figure below, a 2-D data cloud is represented by a probability surface. PCs 1 and 2 explain most of the variation and so the dataset complexity is reduced. The projection of the data onto the surface is useful to reduce multivariate datasets (e.g., landmark data) to a few complex traits (e.g., shape descriptors) for analysis.

**Genetic Architecture of Interspecific Wing Shape Variation in Drosophila.** Left: 15 landmarks used to quantify wing shape. Right: Distribution of landmark values for various populations. Lines connect mean positions for species (red dots, red line) and interspecies hybrid (blue dots, dashed blue line). Pink points are values from backcrossed flies.

**Methods/Results.** Wing shape (A) in *D. sechellia, D. simulans*, their hybrid, and backcross progeny segregates (B, C). PCA reduced the 30-d dataset to 3 significant PCs. These suggest that a few large effect QTL may explain most of the interspecific variation in wing shape (B). Using phenotype-assisted introgression, we will create lineages to isolate and describe the number, genomic positions, and effects of QTLs underlying PC variation. Design of the introgression method will be based on models of genes that vary the genetic architecture of wing shape, the number of individuals used to establish and perpetuate the lineages, and the number of generations the introgression is performed.

**Forewing-Hindwing Allometry Evolution in a Butterfly.** Allometric relationships evolve easily. Evolution of forewing-hindwing allometry in *Bicyclus anynana*. (A) Fore- and hindwing size in ~750 wild-type females. Dashed lines represent the mean allometry (PC1) and 95% confidence ellipse around the population. This relationship results from a genetic correlation selecting for size from 1.0. Dashed arrow (PC2) shows predicted direction of most constrained allometry evolution. Right panel: Distribution of females from replicate populations after 12 generations of artificial selection. Evolved allometries are shown as lines (PC1a) and constrained by 95% confidence ellipses. Replicates share symbols. Contours illustrate selected phenotype targets.

**Methods/Results.** Butterflies were artificially selected based on their divergence from the wild-type scaling relationship by picking individuals with extreme values for PC2 (D). Despite a very strong genetic correlation between the size of the fore- and hindwings, their allometry evolved rapidly along PC2 to produce discrete, novel phenotypes (D). Novel- and wild-type phenotype males competing for matings in a natural setting (E) reveal very strong stabilizing selection favoring the wild-type allometry (F). Natural selection trumps constraint in short-term evolution of this and the following-body size allometry.
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Use color or white boxes to divide space and create flow.
Use color or white boxes to divide space and create flow.
Use directional images or visual cues to create flow
Use directional images or visual cues to create flow
predicting genotype from phenotype

Michael D. Barton, Hazel A. Barton
University of Akron

www.michaelbarton.me.uk

http://www.bioinformaticszen.com/post/genotype-from-phenotype/
Architecture boards essentially use a poster approach to describe the particular, relevant elements of a project.

Note there is no use of boxes and the board has an inherent narrative flow because related elements are grouped, placed to be spoken over.

Some text could be applied to post selected design problems or goals, summarize how these were addressed, etc.

Similar approaches could be used for other design or engineering challenges / projects.
Daegu Gosan Public Library

Competition Client: Daegu Metropolitan City
Suseong-gu Office

BUDGET: KR₩ 7,800,000,000

AREA: 3,100 square meters

LOCATION: 571-1, Shinmae-dong, Suseong-gu
Daegu Metropolitan City, Republic of Korea

Status: Proposal
Identification of QTLs for Tillering Ability in an Inter-Specific Rice Cross

S. Lim, K.K. Sabu, R. Wickneswaran, M.Z. Abdullah

School of Environmental and Natural Resource Sciences, Faculty of Science and Technology, University Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia.
Gene Bank, Malaysian Agricultural Research and Development Institute, 1200 Kepong, Kuala Lumpur. Malaysia.
e-mail: sliem@ppls.ump.edu.my

Introduction

Malaysia generates about 65% of the total rice consumed locally. It is mainly produced under fully irrigated lowland farming conditions. The average annual yield is below 4 tonnes/ha (Fig. 1). Scarcity of suitable land for developing new rice farms, revenue loss due to import of rice, and over-growing population necessitate the development of new varieties with improved yield. Domestication and intensive breeding have resulted in a narrowing of the gene pool of modern rice cultivars.

Wild and unadapted germplasm represents the majority of the existing genetic variation in rice. Common wild rice (Oryza officinalis "Bongara Griff") has many useful genes which could improve the quality and yield potential of cultivated rice (Xiao et al. 1999, Moncada et al. 2000, Septiningsih et al. 2003). We are looking at intervarietal traits of O. rufipogon (IGRC105491) (Fig. 2) to enhance the yielding ability of Oryza sativa MR219 (Fig. 3).

Methodology

The advanced backcross method (Tanksley and Nelson 1987) is a means of reducing the number of donor parent alleles present in a given backcross (Fig. 4). With fewer donor alleles present, deleterious alleles can be readily exposed; conversely, favorable donor alleles at quantitative trait loci (QTL) can be more easily recognized. The study involves the simultaneous transfer of tillering genes into an elite breeding line and the mapping of genetic alien, with reference to the tillering trait via the advanced backcross quantitative trait loci (AB-QTL) approach.

Results

Fig. 5 Various morphological traits of BC1F2, MR219 and O. rufipogon

Discussions

On average, O. rufipogon exhibits 51.3% more tillers-bearing tillers in comparison to MR219. BC1F2 progeny showed 55% more tillers compared to MR219 which is higher than the expected 75%. The number of filled grains per panicle. Furthermore, a marked increase in plant height by 6.9% and cym height by 8.2% would reduce the problem of lodging exhibited by the MR219 cultivar.

Conclusions

The AB-QTL method remains an efficient tool for transferring genes into established crop varieties. With each succeeding backcross generation, a greater proportion of the recurrent non-targeted genes remain along with the donor's genes of interest.

Tillering trait traits of BC1F2 will be regressed to SSR marker data for linkage mapping and QTL analysis. We hope to identify regions of the genome controlling tillering traits, characterize the relative importance of marker regions in terms of the proportion of phenotypic variation each controls and determine whether the same regions affect more than one trait.

Acknowledgements

This project is supported by the Ministry of Science, Technology and Innovation, Malaysia. (Grant No. 04-03-01-0001-AGRES). This work is also partly supported by the Intramural Fund at Far East Agricultural Sciences, National Taiwan University. For her valuable insights into the project.

References


Photo notes

“nice” excel figs ...
**The poor contribution of chimpanzee experiments to biomedical progress**

*JAMA*—*Journal of the American Medical Association* 2017; 318: 281-288

**Andrew Knegt** BSc, MSc, CENSRDC

Editor, Animal campaigns international

London, UK. www.AiFtAC.org.uk

**INTRODUCTION**

Chimpanzee studies are expensive to run and have historically provided limited clinical relevance, yet these studies are still conducted today. Why are chimpanzee experiments so persistent? Here, we analyze the evidence that supports human-relevance and utility of these studies, and discuss how a chimpanzee-centric approach distorts our scientific development.

In this paper, we draw on a comprehensive review of current chimpanzee research to provide an overview of the ethical and biomedical implications of the use of chimpanzees in biomedical research.

**METHODS**

We reviewed 103 relevant articles, which included published literature, grey literature, and expert opinions. We identified studies that met our criteria using a combination of manual and computerized searches of PubMed, Scopus, and other relevant databases.

**RESULTS**

We found that chimpanzees are not the most relevant model for human disease, and that alternative models, such as primates, should be considered. We also found that chimpanzee experiments are not well-aligned with current biomedical research.

**DISCUSSION**

Chimpanzee experiments are expensive, but they are not the only model available. We recommend that chimpanzee experiments be abandoned in favor of other, more relevant models.

**CONCLUSIONS**

Chimpanzee experiments are not necessary for biomedical progress, and alternatives should be considered.

---

**Postcranial Material:**

The size of the elements and their localities are consistent with *R.* *spenceri*. 17 dorsal and caudal vertebrae are preserved, although all are broken, numerous ribs, caudal vertebrae, a complete vertebra of the sacrum, two scapulae, parts of the pelvis, and a complete left hindlimb.

**Acknowledgements:**

Max Hennig for dissecting the skull.

Malcolm McKirdy and the skeleton.

David Hills for preparing the skeleton.

The Royal Albert Museum, Exeter for loan of the postcranial material.

---

**Fodonyx spenceri:**

*Fodonyx* is a new genus of rhynchosaur from the South-West of England. The skull is the almost complete, although missing some pieces can be restored from the existing material of *R. spenceri*. Part of the area around the quadrates is missing and the rear of the lower jaw is frayed. The palate is intact. The skull is somewhat longer than previously. The supratemporal can be confirmed in *Fodonyx*. Uniquely, the postorbital points ventrally.

**Cladistic analysis:**

The position of *Fodonyx* was reevaluated with a new cladistic analysis with 75 characters and 19 taxa. A total of 16 MPTs were recovered giving the MRC tree figured.

**Contrary to expectations, this tree is less resolved than if the original (incorrect) coding for *R. spenceri* is used. This is a result of data replacing 75% less parsimonious arrangements. Thus data increases but tree resolution decreases.**

**Conclusions:**

As long suspected, the Devon rhynchosaur belongs to a new group, and nects between *Rhynchosaurus* and *Hypercodonosteus*.

*Fodonyx* now has a complete skull and most of a postcranial skeleton.

Stratigraphic data suggests that *Fodonyx* was about 3M younger than *Rhynchosaurus*, which may account for its more derived features.

---

**No Background Images!!**
Be smart with color palette

Use colorblind-safe combinations

use CYMG (or RBG w/in the CYMG palette)
7-10% male audience colorblind
many people will print your paper in B&W
use color for emphasis but avoid making it necessary

http://www.r-bloggers.com/color-the-cinderella-of-dataviz/

**Color Universal Design**

http://jfly.iam.u-tokyo.ac.jp/color/index.html
http://www.vischeck.com/
http://www.vischeck.com/vischeck/
http://www.vischeck.com/daltonize/
non color blind

protanope  
(red cone cells defective)

deuteranope  
(green cone cells defective)

tritanope  
(blue cone cells defective)
Set of colors that is unambiguous both to colorblinds and non-colorblinds

<table>
<thead>
<tr>
<th>Original</th>
<th>Simulation</th>
<th>Hardware &amp; Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protan</td>
<td>Deutan</td>
<td>Tritan</td>
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<tr>
<td>Black</td>
<td>- °</td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td>41°</td>
<td>(0,50,100,0)</td>
</tr>
<tr>
<td>Sky Blue</td>
<td>202°</td>
<td>(80,0,0,0)</td>
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<tr>
<td>Bluish Green</td>
<td>164°</td>
<td>(97,0,75,0)</td>
</tr>
<tr>
<td>Yellow</td>
<td>56°</td>
<td>(10,5,90,0)</td>
</tr>
<tr>
<td>Blue</td>
<td>202°</td>
<td>(100,50,0,0)</td>
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<tr>
<td>Vermilion</td>
<td>27°</td>
<td>(0,80,100,0)</td>
</tr>
<tr>
<td>Reddish Purple</td>
<td>326°</td>
<td>(10,70,0,0)</td>
</tr>
</tbody>
</table>

---|-------------|---------------|-----------|
-   | (0,0,0,100) | (0,0,0)       | (0,0,0)   |
41° | (0,50,100,0) | (230,159,0)   | (90,60,0) |
202°| (80,0,0,0)   | (86,180,233)  | (35,70,90)|
Be smart with color palette

Use colorblind-safe combinations

use CYMG (or RBG w/in the CYMG palette)

Use basic color theory to develop a harmonious, evocative palette
1. A color scheme based on analogous colors

Analogous colors are any three colors which are side by side on a 12 part color wheel, such as yellow-green, yellow, and yellow-orange. Usually one of the three colors predominates.

2. A color scheme based on complementary colors

Complementary colors are any two colors which are directly opposite each other, such as red and green and red-purple and yellow-green. In the illustration above, there are several variations of yellow-green in the leaves and several variations of red-purple in the orchid. These opposing colors create maximum contrast and maximum stability.

Base palette on the
i) primary color of a photo, or a highlight in photo

ii) school colors

iii) something distinctive

http://paletton.com/#uid=30U0u0kllIlb0ysgar4qwFBvF9R
Color perception is affected by palette and placement.

Color combinations also affect perception of size (important for figures).
Upload a photo and get a palette for your poster (w/ color ID codes) based on it.
save file large then reduce size
Some like borders on images
I do not.

Get permission before using web images ... photographer could be in the audience; at the very least give photocredit
Overview. Morphological diversification often occurs through changes in the scaling relationships, or allometries, among morphological traits. Allometries evolve as a result of complex interactions among external natural selection, development, physiology, and genetics. We take an integrative approach to study the expression and evolution of scaling relationships among morphological traits to understand the evolution of animal form, using insect wings as a model. Here we describe experiments exploring internal constraints, external selection, and genetic architecture of wing phenotype evolution.

1. Bicyclus system
2. Allometric Relationships Evolve Easily
3. Natural Selection on Allometries is Strong
4. Fly system
5. Wing Phenotypes Segregate

Summary. Genetic integration is predicted to limit the independent evolution of functionally integrated traits. Despite strong genetic correlations among functionally related traits, their allometries can evolve rapidly (3). Strong stabilizing selection favors the wild-type allometry (3). We conclude that natural selection trumps constraint in the short-term evolution of diverse morphological allometries.

Genetic Architecture of Interspecific Wing Shape Variation in Drosophila

I like offset block titles
The Evolution of Morphological Allometries

Tony Frankino
Paul Brakefield
Virginia Crugzago
David Stern
Bas Zwaan

Department of Ecology and Evolutionary Biology, Princeton University
Institute Biologie Leiden, Universiteit Leiden

Overview. Morphological diversification often occurs through changes in the scaling relationships, or allometries, among morphological traits. Allometries evolve as a result of complex interactions among external natural selection, development, physiology, and genetics. We take an integrative approach to study the expression and evolution of scaling relationships among morphological traits to understand the evolution of animal form, using insect wings as a model. Here we describe experiments exploring internal constraints, external selection, and genetic architecture of wing phenotype evolution.

Summary. Genetic integration is predicted to limit the independent evolution of functionally integrated traits. Despite strong genetic correlations among functionally related traits, their allometries can evolve rapidly (1). Strong stabilizing selection favors the wild-type allometry (2). We conclude that natural selection trumps constraint in the short-term evolution of diverse morphological allometries.

1. Bicyclus system
2. Allometric Relationships Evolve Easily
3. Natural Selection on Allometries is Strong

Genetic architecture of interspecific Wing Shape Variation in Drosophila

Fly system

Wing Phenotypes Segregate

Phenotype-based introgression

Methodology

Identification of QTLs for Tilling Ability in an Inter-Specific Rice Cross

Introduction

Wild and unadapted germplasm represents the majority of the existing genetic variation in rice. Common wild rice (Oryza rufipogon Griff.) has many useful genes which could improve the quality and yield potential of cultivated rice (Xiao et al. 1994; Mömota et al. 2001; Senthilingam et al. 2003). We are looking at yield-related traits of O. rufipogon (HGL010849) to enhance the yield ability of Oryza sativa MK219 (Fig. 3).

Results

On average, O. rufipogon attains 1.3% more rice per plant due to better tillers in comparison to MK219. BO-G1 progeny increased yield 5%, tillers compared to MK219 which more than doubled the observed 3% number of filled grains per plant. Moreover, a shorter internode length of 10.5 mm, yield per unit length by 8.2%, would result in yields higher than yield obtained by the MK219 cultivar.

Discussion

The A5-QTL method remains an efficient tool for transferring genes into established crop varieties. With each succeeding backcross generation a greater proportion of the recurrent nonlocal genes remain along with the desired gene of interest.

Tillering-related traits of BO-G1 will be repressed by SSR marker data for linkage mapping and QTL analysis. We hope to identify regions of the chromosome controlling tillering traits, characterise the relative importance of marker regions in terms of the proportion of phenotypic variation each carries and determine whether the same regions affect more than one trait.

Acknowledgements

The paper is supported by the Ministry of Science, Technology and Innovation, Malaysia, under the Long Term Research Grant (Vote 204-1716F), and by the U.S. National Science Foundation (Grant 0455634). We thank the Malaysian Ministry of Higher Education (MOHE) for PhD scholarship support.

References


Key points:
- Genetic architecture of wing shape variation
- Allometric relationships evolve easily
- Natural selection on allometries is strong

Figures:
- Distribution of wing phenotypes from various Drosophila species in a PCA
- Scatter plots of PC1 vs PC2 for Genotypes A, B, C, D, and E
- Phenotype-based introgression in a butterfly
- Identification of QTLs for tilling ability in an inter-specific rice cross
Lichenometric studies in Gangotri glacier region (Bhagirathi valley): an insight into the disturbed geomorphology of the area

Rajan K Gupta1, D.K. Upeti2

ABSTRACT

Lichenometric studies using Rhizocarpon geographicum has been successfully used for dating fluvial and mass wasting sediments in the Gangotri region. The present study was carried out at the Gangotri glacier (89°50' 39.6''E, 30°15'2.02''N) in the Bhagirathi Valley. The sampling was done on the fan sediments and scarp face of the Gangotri glacier to study the variation in lichen growth along a slope of 5°. The first-order polynomial was used to model the decay rate of lichens, which was based on the growth of lichens in sedimentary rocks. The results indicate that the decay rate increases with increasing slope, which is an indication of the geomorphic activity in the region. The study also shows that the geomorphic activity is higher on the scarp face than on the fan sediments. The results of this study can be used to understand the geomorphic processes occurring in the region and to study the effect of climate change on the lichen growth.

INTRODUCTION

Lichenometry is a geomorphic method of determining the age of deposits (moraines, paraglacial flows, avalanche, landslides, and rock fall activities), surfaces (diagonally and single-age) and analysing the rapid climate change.1, 2, 3, 4

Basic assumption underlying the technique is that lichens grow radially at specific rates as they grow.5, 6

A Lichenometric dating is very efficient (within 10% error) when applied to surfaces that have been exposed for less than 1000 years and are found superior to carbon dating in determining age of surfaces which got exposed less than 50 years ago.7, 8

Most common lichen used in Lichenometry is a crustose lichen Rhizocarpon geographicum due to its slow and radial growth. Other lichens used for Lichenometry purposes are those belonging to genus Xanthoria.

MATERIALS AND METHODS

Study area showing sampling sites in Bhagirathi valley.

- Largest radial diameter of 5 lichen thallus (STL) method of Rhizocarpon geographicum was recorded at regular frequency of 1.5 km from Gangotri to Gomukh in 23 sites sites in the three primary stretches i.e. Gangotri-Chitar, Chitar-Bhijpasa and Bhijpasa to Gomukh.
- Sampling was done on all the geomorphic formations in Bhagirathi valley.

ACKNOWLEDGMENT

Authors are grateful to Director, NBPB, Lucknow and Materially Civil Commission, India for providing necessary laboratory facilities and technical assistance.

1. Himanshu Rai, 2. D.K. Upeti

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2. Lichenology Laboratory, National Botanical Research Institute, Lucknow, Uttar Pradesh, India-226001

REFERENCES


RESULTS

- A gradual decrease in mean thallus size was observed from Gangotri to Gomukh.
- This decrease was non-linear and was explainable by second order polynomial function (p = 0.646, 0.954).

DISCUSSION & CONCLUSION

Lichenometric studies concluded that the geomorphology of the area was subjected to disturbances like landslides, glacial actions, monsoon and seismic activities.

https://www.flickr.com/groups/pimpmyposter/
Multimedia

Can use digital Tablet mounts or laptops running software / video loops

Or physical models to illustrate complex things

*Take care that they do not obstruct or distract, and that they add valuable content*
Multimedia

Use QR codes to direct people to content
- webpage
- demo app
- demo video
- copy of poster

Place on poster where it is easy to image

Realize that many people will not have QR readers
Poster presentations are used to disseminate new knowledge at scientific conferences and meetings and to provide opportunities for liaison within the scientific community. The factors that influence people's decisions to visit scientific posters are not well understood. Through a MEDLINE search, we found only 2 studies that addressed poster design and outlined techniques for making posters attractive to viewers. Neither study examined the influence of the presenter's attire on visitation rates. We therefore decided to determine whether the degree to which a presenter's attire coordinates with the poster influences the number of visitors at the poster.

The study poster consisted primarily of text set against 4 non-clashing colours (blue, lavender, green and yellow). The study presenter was given 2 blouses to wear during the poster session. One blouse (lavender coloured) coordinated with the colours of the poster, and the other blouse (rust coloured) clashed with the poster (Fig. 1). The blouses were similar in style, and both were ironed by hotel staff on the morning of the presentation. For the control poster, we selected one from the registered poster presentations that was similar to the study poster in theme (pediatrics in developing countries), location (adjacent to the study poster) and use of colour, and whose presenter wore neutral-coloured clothing (Fig. 2). The control presenter gave consent to participate in the study and agreed not to change her attire or behaviour throughout the poster session. The presenters coincidentally shared many characteristics (sex, age, height, race, nationality and hair colour).

The study presenter began the presentation wearing the lavender-coloured blouse. Because of a delayed start to the poster session, we did not know how long the session would last or when the midpoint would occur. We therefore asked the presenter to change into the rust-coloured blouse after 22 minutes (when there were no visitors). After a subsequent 28 minutes she changed back into the lavender-coloured blouse (again when there were no visitors) for the remaining 17 minutes. Every 60 seconds, a study investigator (located in a secret observation point about 4 metres away) recorded the number of visitors to both the study and control posters. (A visitor was defined as a person looking at the poster or engaged in conversation with the poster presenter.) During the entire session, both presenters were asked to maintain their posture and resting hand position. Their method of greeting, engaging and conversing with visitors was controlled: the presenters were asked not to start a conversation with any potential visitor unless spoken to first by the visitor.

Effect of colour coordination of attire with poster presentation on poster popularity

David A. Keegan, Susan L. Bannister

~70% of visits went to color-coordinated presenter

CMAJ Keegan and Bannister 169 (12): 1291. (236K)
can go overboard

*(note the tooth-tie)*
Suggestions for Poster Tending

I think it is awkward
- people feel forced to interact
- people put on the spot to think
- people get trapped / can’t leave
- many academics are weirdos

General flow:
- Say hi
- Offer to explain/walk them through
- Start with a 2 min overview** (no jargon)
  - topic sentence for each section, that’s it
- Close with the big conclusion (not future dirs) and offer to flesh it out in detail for them
- Gives them an out / custom focus

***'I am interested in …’
Suggestions for Poster Tending

- be enthusiastic; it’s new to the audience
- if people walk up while you are talking, finish before starting over
- don’t booze before/during your session
- have mint and water with you
- be clean. no smells.
- bring 8x12 copies of the poster and business cards and a pen

- best way to learn is to watch others, participate as an audience member & practice
“2-min overview”
- Introduce you and overview the core of your work in a relaxed two minutes
- Use the poster effectively as a prop

I’m ___ from ____. I am interested in ____, and my thesis work is focused on thesis ‘title’. Here I’m presenting a portion of this work. More specifically …

- Then talk through the main points of each section of your poster; 1-2 sentences from each block

- No jargon
Recap

- Tell one story
- Tailor to your audience
- No jargon

- Use < 300 written words & compelling images
- The poster is a prop for your presentation
- Be practiced, conversational, and control the social dynamic

- If you stumble or get off topic - don’t worry, have fun
The Evolution of Morphological Allometries

Tony Frankino
Paul Brakefield
Virgine Orgogozo
David Stern
Bas Zwaan

Department of Ecology and Evolutionary Biology, Princeton University
Institute Biologie Leiden, Universiteit Leiden

1. Bicyclus system

Left: Wing areas of live butterflies are estimated as polygons defined by four landmarks.

Below: Bicyclus adults behave normally in an open, naturally planted greenhouse.

Summary. Genetic integration is predicted to limit the independent evolution of functionally integrated traits. Despite strong genetic correlations among functionally related traits, their allometries can evolve rapidly (2). Strong stabilizing selection favors the wild-type allometry (3). We conclude that natural selection trumps constraint in the short-term evolution of diverse morphological allometries.

2. Allometric Relationships Evolve Easily

![Graphs showing allometric relationships between forewing and hindwing areas and fresh mass.](image)

Strong genetic correlations underlie the forewing-hindwing and forewing-body size allometries. Consequently, evolution of these scaling relationships in a direction perpendicular to the primary axis of variation should be difficult. A&B show wild-type allometries (PC1) fit to a population of ~750 females and circumscribed by 95% confidence ellipse. Surprisingly, artificial selection for shifts in allometry intercepts produced discrete populations possessing novel allometries in just 12 generations. C and D show these evolved populations. Replicates share symbols and are pooled for illustration of derived allometries in each selected direction. Cartoons illustrate selected phenotype targets.

Frankino, Zwaan, Stern, & Brakefield. Evolution, in press

3. Natural Selection on Allometries is Strong

![Graphs showing natural selection on allometries.](image)

Males from the artificially selected lineages were divided into wild-type and novel-phenotype allometry classes. The allometry of novel-phenotype class males (E&F; solid symbols, populations shown with 95% confidence intervals) differed from the the allometry of wild-type class males (open circles) by 3 SD. Competition among these males for matings in a large, naturally planted greenhouse (Panel 3) revealed strong selection favoring wild-type allometries (G&H).

Overview. Morphological diversification often occurs through changes in the scaling relationships, or allometries, among morphological traits. Allometries evolve as a result of complex interactions among external natural selection, development, physiology, and genetics. We take an integrative approach to study the expression and evolution of scaling relationships among morphological traits to understand the evolution of animal form, using insect wings as a model. Here we describe experiments exploring internal constraints, external selection, and genetic architecture of wing phenotype evolution.
Modeling the flight of a bat

1. A Potential Flow model is used to predict the aerodynamic forces on the bat's wings.
2. The accelerations of the center of gravity are used to determine the aerodynamic forces required to sustain flight.
3. The wake correlation distribution illustrates the flow topology of the forces generated during flight.
4. Complex vortex structures are present in the wake as a result of the unsteady force generation during flapping flight.

A computer simulation of the unsteady aerodynamics of a bat flying at 3.4 m/s

Bats are the only mammals capable of sustained flight. They are highly maneuverable and exploit efficient flight strategies. Today, we are using experiments and computer simulations to understand the details of the invisible air flow around the wings of a flying bat.

To construct a precise time-dependent model of bat flight, state of the art motion capture technology is applied to high speed stereo video of a bat (Myotis smilacinus) flying in a wind tunnel (above). The three-dimensional positions of the motion capture markers are used to construct the virtual geometry, which is used in the simulations. The surface model is used to compute the aerodynamics forces by applying a boundary element method Potential Flow model as well as a mass distribution inertial model. The vertical forces deduced from the observed accelerations are found to be in good agreement with those predicted by the flow model (right).
HAWAII — HOT SPOTS & AGING VOLCANOES

Here the earth’s surface appears naked, without its covering of the waters of the Pacific, in shades of blue from dark to light. The volcanic Hawaiian islands rise above the ocean surface in shades of green, yellow, and brown. Island follows island in a straight line, like a chain of beads. The line of volcanoes can be traced more than 3,000 miles to the west, before it suddenly changes direction and heads north, where it ends off the Russian mainland after a further 1,500 miles.

Volcanism is generally associated with fault zones or subduction zones, but Hawaiian volcanoes are far removed from any plate boundaries. Chains of volcanoes like this one are found in a number of places. In 1953 the geophysicist John Tuzo Wilson formulated his theory of hot spots to explain the origin of such chains. It suggests that the same crust moves across small spots where the mantle continuously thrashes up mantle material. Successive volcanoes are formed as the hot spot’s magma penetrates the crust and reaches the surface. As plates continue their movement, these volcanoes are moved farther and farther away from the hot spot, after thousands of years, cut off from their last supply, they become extinct. Aging processes specific to volcanoes, the pressure of their own weight, and erosion reduce their size over the course of time, until they are completely leveled or buried.
Practicing Your Elevator Pitch
Overview of Presenters

Monica Thompson
Executive Director

Tiffany Bitting
Associate Director
WHAT IS AN ELEVATOR PITCH?

This technique is known by several names:

• Elevator Speech, 60-second commercial, or your response to the “Tell me about yourself” question.

• Creating this two minute intro allows you to take sock of WHO you are, WHAT you offer, and WHERE you want to go based upon your experience.

• PRACTICE, PRACTICE, PRACTICE is the only way to make it feel natural.
AREAS TO HIGHLIGHT

Your Experience:
Academic, Research, Work, Leadership, Teaching and Field Experience

Your Research Problem/Area(s) of Interest:
Piques audience interest and investment in the topic: Why is it important?
**Areas to Highlight**

**Your Proposed Solution:**
Clearly state the proposed solution in an applicable way.

**Your Key Results/Findings:**
Clearly explain the implications for the results or findings. How will these results make an impact within your field?
Name: Hi, my name is Michelle Hastings
Background: I am pursuing a master of science degree in Subsea Engineering at the University of Houston
Research Focus: My research involves understanding the stability of pipelines through different pressure and temperature variables. My focus is specifically on off-shore pipelines and how they differ from traditional on-shore methods.
**EXAMPLE II**

- **Name:** Hello, my name is Michael Smith
- **Background:** I am completing a Master of Science in Information System Security at the University of Houston. Cybersecurity and cyber defense programs are recognized by the NSA and the Department of Homeland Security.
- **Research Focus:** My research involves assessing the security needs of information and network systems for small to mid-size financial institutions. Specifically how implementing the recommended security solutions impacts operations.
Name: Hi, my name is Sam Logan

Background: I am pursuing a graduate degree in Counseling Psychology at the University of Houston.

Research Focus:
My research involves understanding mental health in the workplace. My focus is specifically on how providing mental health days impacts employee productivity and how it differs in public versus private work settings.
SCENARIO

- You are in an elevator and recognize the person next to you as someone who holds a position where you want to work or does what you like to do. There is not much time to talk before you reach your floor. Introduce yourself, tell them who you are, what is your area of research interest and what you have to offer, all in less than a minute.

- Please take 2 minutes per person to practice your pitch with your neighbor
UCS PREPARATION WEEKS

UNIVERSITY CAREER SERVICES PRESENTS:
Professional Development Week
SEPTEMBER 11 - SEPTEMBER 14, 2017

MONDAY, SEPT 11
Today’s Theme: Explore
| 9AM-10AM and 1-2PM | RESUME DROP-INS |
| 10AM-12PM | COFFEE, CAREERS AND COUNSELORS: JOIN US TO LEARN MORE |
| 1-2PM | SHARING STORIES OF SUCCESS: A 1ST GENERATION STUDENT PANEL |

TUESDAY, SEPT 12
Today’s Theme: Engage
| 9AM-10AM and 1-2PM | RESUME DROP-INS |
| 10AM-12PM | MOCK INTERVIEWS: ARE YOU READY FOR YOUR NEXT INTERVIEW? |
| 1-2PM | LEARNING ABROAD: PASSPORT TO YOUR CAREER |
| 2-4PM | TEACHING + SOCIAL JUSTICE: THE CAREER OF YOUR DREAMS? |

WEDNESDAY, SEPT 13
Today’s Theme: Empower
| 9AM-10AM and 1-2PM | RESUME DROP-INS |
| 10AM-12PM | LINKEDIN AT THE LIBRARY |
| 12-2PM | ENERGY CAREER FAIR |
| 2-4PM | JOB SEARCH 101: A ROADMAP FOR INTERNATIONAL STUDENTS |

THURSDAY, SEPT 14
Today’s Theme: Employ
| 9AM-10AM and 1-2PM | RESUME DROP-INS |
| 10AM-12PM | CAMPUS TO CAREERS: COOGS JOB SHADOWING DAY |
| 12-2PM | COMMON CENTERS: LEARN BUDGETING AND MONEY MANAGEMENT TIPS |
| 2-4PM | DON’T LEAVE MONEY ON THE TABLE: LEARN HOW TO NEGOTIATE YOUR SALARY |
| 4-6PM | KEEP UP WITH THE TRENDS: ACE YOUR VIRTUAL INTERVIEW |

THANK YOU to these partners for supporting PEM Fall 17:
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M.D. ANDERSON LIBRARY
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UNIVERSITY CAREER SERVICES PRESENTS:
STEM Careers Week
FEBRUARY 27 - MARCH 2, 2017

MON - FEB 27
12PM - 1PM // UCS OFFICE
STEM RESUME WORKSHOP
(Is your resume polished and ready for the career fair? To make sure, attend this workshop!)

WED - MAR 1
12PM - 1:30PM // UCS OFFICE
“GO AGAINST THE FLOW” DOCUMENTARY SCREENING
("Go Against the Flow" is a documentary about women entrepreneurs and how they navigated the tech industry. Lunch will be provided; students must RSVP in Cougar Pathway. Co-Sponsored by Women and Gender Resource Center and UM Red Labs)

3PM - 4PM // UCS OFFICE
NETWORKING 101 WORKSHOP
(Networking is one of the ways many people find employment. Attendees will learn how to develop strong professional networks.)

THU - MAR 2
3PM - 4PM // UCS OFFICE
UNDERGRADUATE RESEARCH WORKSHOP
(Hear more about undergraduate research opportunities from the Office of Undergraduate Research)

3PM - 4PM // UCS OFFICE
GRADUATE & PROFESSIONAL SCHOOL PREP WORKSHOP
(interested in graduate or professional school? Attend this workshop to learn more about the process!)

FRI - MAR 3
1PM - 4PM // STUDENT CENTER
BALLROOM
STEM CAREER FAIR
(Meet with recruiters from local, regional and national companies who are searching for STEM majors to fill their open positions. Professional Dress is required. RSVP in Cougar Pathway)

For more information about STEM Careers Week, log into Cougar Pathway or contact UCS: ucs@uh.edu - 713-743-5100 - www.uh.edu/ucs

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UCS CAREER CLOSET

UNIVERSITY CAREER SERVICES

CAREER CLOSET

$10 3-DAY RENTAL

SIZES 34-52

SAME DAY APPOINTMENTS

SIZES 0-22

AVAILABLE TO ALL UH STUDENTS
LOCATED IN STUDENT SERVICE CENTER 1
SIZES AND AVAILABILITY MAY VARY
BOOK APPOINTMENTS THROUGH COUGAR PATHWAY

COUGAR CORPORATE PARTNERS

MINUTI COFFEE

Marathon Oil

Total

CenterPoint Energy

Data Foundry

Sun Coast Resources, Inc

Quality Fuels & Lubricants
Save the Date

Fall 2017

Nov 3
Health and Community Services Career Fair

Nov 14
International Student Panel

For more information, log into www.uh.edu/cougarpathway or check out our event calendar at www.uh.edu/ucs
Location: 106 Student Service Center 1 (#524)
Website: www.uh.edu/ucs
Drop-ins: Monday-Thursday 9am-12pm; 1-4pm
Extended Drop-ins: Monday - Tuesday 4-6pm