

LAPORAN PENGABDIAN KEPADA MASYARAKAT INTERNASIONAL



“WORKSHOP SCIENTIFIC WRITING : SHARING SCIENTIFIC RESULTS”

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**Fakultas Biologi dan Pertanian, Universitas Nasional
dengan**

**Department of Anthropology, University of Michigan
JUNI 2024**

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RINGKASAN

Kegiatan pengabdian kepada masyarakat yang berjudul *Workshop Scientific Writing: Sharing Scientific Results* yang merupakan kerjasama antara Fakultas Biologi dan Pertanian Universitas Nasional dengan Department of Anthropology University of Michigan. Workshop ini bertujuan untuk meningkatkan keterampilan penulisan ilmiah bagi dosen, mahasiswa, serta institusi terkait. Kegiatan ini menghadirkan narasumber Prof. Dr. Andrew J. Marshall dari University of Michigan, yang membahas berbagai aspek penting dalam penulisan ilmiah, mulai dari penyusunan naskah hingga strategi publikasi di jurnal internasional. Selama workshop, peserta memperoleh pengetahuan mendalam tentang penulisan ilmiah yang baik, penyajian data, serta etika dalam publikasi. Workshop ini juga menekankan pentingnya integritas ilmiah, menghindari plagiarisme, serta mempraktikkan transparansi dalam penyajian hasil penelitian. Hasil evaluasi menunjukkan bahwa kegiatan ini berhasil meningkatkan kemampuan menulis ilmiah para peserta, yang sebagian besar merasa lebih percaya diri dalam menyusun naskah untuk publikasi. Kegiatan ini diharapkan dapat meningkatkan jumlah publikasi internasional dari Universitas Nasional dan memperkuat jaringan akademik antara institusi. Workshop ini juga mendukung tercapainya reputasi internasional bagi universitas melalui publikasi ilmiah berkualitas.

Kata kunci: *Biologi, Jurnal, Penulisan ilmiah, Publikasi internasional, Workshop*

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BAB I PENDAHULUAN

A. Latar Belakang

Fakultas Biologi dan Pertanian, Universitas Nasional telah menjalankan kerjasama dengan Michigan University sejak tahun 2018. Kegiatan kerjasama banyak dilakukan dalam bidang penelitian khususnya ekologi di Stasiun Penelitian Cabang Panti, Taman Nasional Gunung Palung, Kalimantan Barat. Selain kegiatan penelitian, Profesor Andy Marsall sering memberikan arahan mengenai perkembangan metode penelitian dan analisis data. Hal tersebut sangat baik dilakukan secara berkala, sehingga dosen, mahasiswa ataupun instansi luar lainnya yang diundang dapat meningkatkan kapasitasnya dibidang konservasi alam. Publikasi bersama antara Fakultas Biologi dan Pertanian, Universitas Nasional dengan Department of Anthropology, University of Michigan telah beberapa kali dilakukan, namun pembelakan materi penulisan ilmiah khususnya bagi mahasiswa masih perlu dilakukan.

Penulisan ilmiah merupakan salah satu aspek penting dalam dunia akademik dan penelitian. Kemampuan untuk menulis secara ilmiah bukan hanya sebatas untuk mempublikasikan hasil penelitian, tetapi juga sebagai sarana berbagi pengetahuan yang dapat bermanfaat bagi kemajuan ilmu pengetahuan dan teknologi. Di era globalisasi dan perkembangan teknologi informasi saat ini, penyebaran hasil penelitian secara tepat waktu dan akurat menjadi semakin penting. Banyak peneliti, baik di Indonesia maupun di dunia internasional, menghadapi tantangan dalam mengkomunikasikan hasil penelitiannya secara efektif melalui tulisan ilmiah yang baik dan sesuai standar internasional.

Tulisan ilmiah yang baik adalah yang mampu menyampaikan ide atau hasil penelitian secara jelas, sistematis, dan dapat dipahami oleh pembaca dari berbagai latar belakang akademik. Selain itu, penting juga untuk memperhatikan aspek kejujuran dan transparansi dalam penulisan ilmiah, termasuk dalam hal penyajian data dan analisis hasil penelitian. Salah satu permasalahan yang sering dihadapi oleh peneliti adalah kurangnya keterampilan dalam menulis artikel ilmiah yang memenuhi kriteria jurnal internasional. Hal ini menjadi kendala bagi banyak akademisi baik dosen maupun mahasiswa, terutama di Indonesia, untuk dapat mempublikasikan hasil penelitiannya di jurnal-jurnal bereputasi tinggi.

Kegiatan Workshop Scientific Writing “Sharing Scientific Results” ini diadakan sebagai salah satu upaya untuk meningkatkan kemampuan menulis ilmiah bagi para peneliti, dosen, dan

mahasiswa, khususnya di lingkungan akademik Fakultas Biologi dan Pertanian, Universitas Nasional. Workshop ini dirancang untuk memberikan pemahaman mendalam mengenai proses penulisan ilmiah, mulai dari penyusunan naskah hingga strategi untuk dapat lolos dalam publikasi jurnal internasional. Selain itu, peserta juga akan mendapatkan kesempatan untuk mempelajari teknik-teknik penulisan yang baik dan benar, serta cara menghindari kesalahan umum yang sering terjadi dalam penulisan ilmiah.

Melalui kegiatan ini, diharapkan tercipta budaya menulis yang lebih baik di kalangan akademisi maupun peneliti, sehingga dapat mendukung tercapainya target-target publikasi internasional yang telah ditetapkan oleh berbagai institusi pendidikan tinggi. Selain itu, kegiatan ini juga diharapkan dapat membuka peluang kolaborasi antara akademisi dari berbagai institusi, baik di dalam maupun luar negeri, yang pada akhirnya akan memperkuat jejaring akademik dan mendukung perkembangan ilmu pengetahuan di Indonesia.

B. Permasalahan

Para peserta juga akan diajak untuk berdiskusi secara langsung dengan pakar di bidang penulisan ilmiah yang memiliki pengalaman luas dalam publikasi internasional. Hal ini diharapkan dapat memberikan wawasan baru serta inspirasi bagi para peserta dalam mengembangkan keterampilan menulis ilmiah mereka. Dengan semakin tingginya persaingan di dunia akademik, kemampuan untuk menghasilkan tulisan ilmiah yang berkualitas menjadi sangat penting. Oleh karena itu, Workshop Scientific Writing “Sharing Scientific Results” diharapkan dapat menjadi solusi bagi para peneliti yang ingin meningkatkan kualitas penulisan ilmiah mereka, serta mempercepat proses publikasi hasil penelitian di jurnal-jurnal internasional.

C. Manfaat dan Urgensi Pengabdian Kepada Masyarakat

Kegiatan ini diharapkan dapat memberikan manfaat yang signifikan, baik bagi peserta individu maupun bagi institusi yang diundang. Bagi individu, workshop ini akan meningkatkan kemampuan menulis ilmiah dan memperluas jaringan akademik. Sementara itu, bagi institusi, kegiatan ini akan membantu meningkatkan jumlah publikasi internasional dari para peneliti di lingkungan akademiknya, yang pada gilirannya akan berkontribusi pada peningkatan reputasi institusi di tingkat global.

D. Tujuan Kegiatan

Melalui workshop ini, peserta diharapkan mampu menyusun naskah ilmiah yang berkualitas, serta memiliki keterampilan untuk berbagi hasil penelitian mereka dengan cara yang lebih efektif. Salah satu tujuan utama dari kegiatan ini adalah untuk membantu mempercepat proses publikasi hasil penelitian yang telah dilakukan, sehingga dapat memberikan kontribusi yang lebih besar bagi perkembangan ilmu pengetahuan di tingkat nasional maupun internasional.

Selain itu, workshop ini juga bertujuan untuk meningkatkan kesadaran akan pentingnya keterbukaan dan kejujuran dalam proses penelitian dan penulisan ilmiah. Banyak kasus penarikan artikel dari jurnal internasional disebabkan oleh praktik tidak etis dalam penelitian, seperti manipulasi data atau plagiarisme. Oleh karena itu, dalam workshop ini akan ditekankan pentingnya integritas ilmiah dan tanggung jawab moral sebagai seorang peneliti.

BAB II METODE PENGABDIAN KEPADA MASYARAKAT

A. Waktu, Lokasi dan Peserta

Waktu Kegiatan	: Kamis, 20 Juni 2024
Lokasi Kegiatan	: Laboratorium Zoologi, Universitas Nasional
Peserta	: Mahasiswa berjumlah 32 orang, Dosen 8 orang, instansi lain 10 orang (Daftar hadir terlampir)
Narasumber	: Prof. Dr. Andrew J. Marshall dari Michigan University

B. Bahan dan Alat/Instrumen Pengabdian kepada Masyarakat

Kegiatan pengabdian kepada masyarakat ini dilakukan dalam bentuk pelatihan pembuatan karya tulis ilmiah berdasarkan hasil penelitian. Pelatihan ini akan dipandu oleh narasumber yang berpengalaman dalam bidang penulisan dan memiliki pengetahuan tentang konservasi alam. Adapun materi yang disampaikan oleh narasumber dapat dilihat pada lampiran.

Alat dan bahan yang digunakan untuk melaksanakan kegiatan antara lain:

1. Alat presentasi (lap top, LCD dan layar)
2. Alat dokumentasi (kamera)
3. Powerpoint

C. Cara Kerja

Langkah kerja yang dilakukan dalam kegiatan pengabdian masyarakat dengan judul Workshop Scientific Writing “Sharing Scientific Results” antara lain sebagai berikut:

1. Perencanaan dan Persiapan Kegiatan

Langkah awal yang perlu dilakukan adalah merencanakan dan mempersiapkan kegiatan dengan baik, sehingga tujuan dari workshop ini dapat tercapai secara efektif. Tahapan perencanaan meliputi:

- a. Identifikasi kebutuhan peserta: Dilakukan survei awal atau assessment untuk mengetahui tingkat kemampuan peserta dalam penulisan ilmiah dan kebutuhan spesifik mereka, seperti kendala dalam struktur artikel, penggunaan bahasa Inggris, atau pemahaman tentang publikasi jurnal internasional.
- b. Penentuan narasumber dan mentor: Mengidentifikasi dan mengundang pakar di bidang

penulisan ilmiah dan publikasi jurnal internasional sebagai narasumber, seperti akademisi senior, editor jurnal, atau peneliti berpengalaman.

- c. Penyusunan modul dan materi workshop: Menyusun materi yang komprehensif yang mencakup teori penulisan ilmiah, strategi publikasi, penggunaan alat bantu penulisan (misalnya, manajemen referensi), serta etika penulisan ilmiah.
- d. Pengaturan logistik: Mempersiapkan segala kebutuhan teknis, seperti lokasi (jika dilakukan secara luring), platform (untuk workshop daring), serta peralatan pendukung seperti proyektor, laptop, dan koneksi internet.

2. Sosialisasi dan Promosi Kegiatan

Tahap ini bertujuan untuk menarik peserta yang relevan untuk mengikuti workshop. Beberapa kegiatan yang bisa dilakukan dalam tahap sosialisasi dan promosi adalah:

- a. Membuat poster atau brosur promosi: Mendesain materi promosi yang menarik dan menyampaikan informasi penting seperti tanggal, lokasi, narasumber, serta cara pendaftaran.
- b. Distribusi informasi: Menggunakan media sosial IG dan Whatsapp serta website fakultas, untuk menyebarkan informasi mengenai workshop ini. Pastikan informasi tersebar luas di kalangan akademisi, peneliti, dan mahasiswa.
- c. Pendaftaran peserta: Membuka pendaftaran bagi peserta melalui platform daring, berupa Google Forms, serta memberikan panduan pendaftaran yang jelas. Data yang dikumpulkan meliputi latar belakang peserta, institusi, bidang penelitian, dan kebutuhan pelatihan.

3. Pelaksanaan Workshop

Pelaksanaan workshop dilakukan secara terstruktur dengan tujuan untuk memberikan pemahaman mendalam mengenai proses penulisan ilmiah dan strategi publikasi. Kegiatan dimulai pukul 16.00 hingga 19.00 WIB. Berikut adalah langkah-langkah utama dalam pelaksanaan workshop:

1. Persiapan Materi dan Alat Bantu Pembelajaran:

- o Identifikasi materi yang akan disampaikan, termasuk konsep keanekaragaman hayati, metode penelitian, dan struktur penulisan karya tulis ilmiah.
- o Siapkan presentasi yang menarik dan informatif, serta alat bantu pembelajaran seperti slide, contoh-contoh kasus, dan materi video yang relevan.

2. Sambutan dan Pengantar:

- Mulailah kegiatan dengan sambutan yang hangat dan pengantar singkat mengenai tujuan serta pentingnya kegiatan penyuluhan ini bagi peserta dari ketua panitia dan Dekan Fakultas Biologi dan Pertanian, Universitas Nasional.
- Jelaskan dengan jelas apa yang akan dipelajari dan diharapkan dari kegiatan ini.

3. Pemaparan Materi:

Secara khusus, Workshop Scientific Writing “Sharing Scientific Results” mencakup beberapa materi penting, seperti:

- **Sesi 1: Prinsip dasar penulisan ilmiah:** Pada sesi ini, narasumber memberikan materi tentang prinsip-prinsip dasar penulisan ilmiah, struktur artikel yang benar, dan bagaimana menyampaikan ide dengan jelas dan efektif. Fokus pada pentingnya kejelasan tujuan penulisan dan alur logika dalam menyusun naskah.
- **Sesi 2: Teknik penyajian data dan hasil penelitian:** Pada sesi ini, peserta diajarkan cara menyajikan data dan hasil penelitian dengan menggunakan tabel, grafik, dan diagram yang tepat. Pemahaman tentang analisis statistik yang tepat serta cara menuliskan hasil analisis dengan jelas juga diberikan.
- **Sesi 3: Strategi publikasi di jurnal internasional:** Narasumber akan membahas cara memilih jurnal yang sesuai, tips agar artikel dapat diterima di jurnal bereputasi, serta pentingnya mengikuti pedoman penulisan jurnal yang dituju. Selain itu, akan disampaikan bagaimana cara menghadapi proses *peer review* dan revisi artikel.
- **Sesi 4: Etika penulisan ilmiah dan plagiarisme:** Sesi ini mengulas aspek-aspek etika dalam penulisan ilmiah, termasuk plagiarisme, manipulasi data, dan pentingnya menyusun artikel yang orisinal. Peserta juga akan diajarkan cara memeriksa plagiarisme menggunakan perangkat lunak yang tersedia.
- **Sesi 5: Latihan menulis dan evaluasi naskah:** Dalam sesi ini, peserta diminta untuk menulis bagian tertentu dari artikel ilmiah (misalnya, abstrak atau pendahuluan) dan mendapatkan umpan balik langsung dari mentor atau narasumber. Kegiatan ini bertujuan untuk memperkuat pemahaman peserta melalui praktek langsung.
- **Sesi 6: Diskusi dan tanya jawab:** Di akhir workshop, dilakukan sesi diskusi dan tanya jawab, di mana peserta dapat mengajukan pertanyaan terkait tantangan yang mereka hadapi dalam menulis artikel ilmiah dan mendapatkan saran praktis dari narasumber.

BAB III HASIL DAN PEMBAHASAN

A. Pelaksanaan Kegiatan

Kegiatan ini merupakan implementasi kerjasama MoU antara Fakultas Biologi dan Pertanian, Universitas Nasional dengan Department of Anthropology, The University of Michigan. Kegiatan implementasi dilakukan oleh Departemen Biologi, Universitas Nasional. Acara yang bertajuk "Sharing Scientific Results" ini merupakan bagian dari komitmen Departemen Biologi, Universitas Nasional untuk mendorong pertukaran pengetahuan dan meningkatkan kolaborasi akademik. Kegiatan hari ini dihadiri lebih dari 50 orang peserta yang terdiri atas dosen dan mahasiswa dari Departemen Biologi, Universitas Nasional; peserta dari luar juga turut hadir dari Balai Taman Nasional Gunung Palung, Kalimantan Barat, Guru Sekolah, Yayasan Palung dan Borneo Institute.

Prof. Marshall memulai dengan pentingnya memahami konteks penelitian, merangkum pengetahuan yang ada, dan mengidentifikasi kesenjangan yang perlu diisi oleh penelitian baru. Ditekankan juga pentingnya menulis abstrak yang ringkas namun mencakup semua detail kunci penelitian, karena sebagian besar pembaca yang tertarik pada jurnal penelitian hanya akan membaca abstrak. Tahapan penulisan jurnal dimulai dengan melihat data yang dimiliki, mengeksplorasi dan menganalisisnya, setelah itu kita dapat memulai menuliskan metode, hasil dan pembahasan, kesimpulan. Bagian selanjutnya dapat menuliskan pendahuluan, lalu abstrak. Sedangkan judul dari jurnal dituliskan paling akhir. Saat manuskrip selesai dibuat, saran dari Prof. Marshall adalah meminta masukan dari teman, kolega dan kolaborator sebelum mengirim jurnal pada penerbit. Foto-foto kegiatan dapat dilihat pada gambar dibawah ini.



Gambar 1. Sambutan oleh ketua panitia dan Dekan Fakultas Biologi dan Pertanian



Gambar 2. Pemaparan materi dari Prof. Dr. Andrew J. Marshall



Gambar 3. Pemberian sertifikat dari Dekan Fakultas Biologi dan Pertanian kepada nararumber



Gambar 4. Foto bersama narasumber dan peserta

B. Evaluasi

Setelah pelaksanaan workshop, tahap monitoring dan evaluasi dilakukan untuk memastikan keberhasilan kegiatan dan untuk mengetahui peningkatan pemahaman serta kemampuan peserta dalam menulis ilmiah. Langkah-langkah dalam tahap ini meliputi:

- **Evaluasi peserta:** Menggunakan kuesioner untuk mengevaluasi sejauh mana materi yang disampaikan dapat dipahami oleh peserta, serta dampak workshop terhadap kemampuan

mereka dalam menulis artikel ilmiah. Evaluasi juga mencakup umpan balik tentang kualitas materi, narasumber, dan penyelenggaraan secara keseluruhan.

- **Laporan akhir:** Menyusun laporan akhir yang mencakup hasil evaluasi kegiatan, termasuk jumlah peserta, pencapaian workshop, dan rekomendasi untuk peningkatan kegiatan di masa mendatang. Laporan ini juga dapat digunakan untuk mengukur dampak nyata dari kegiatan pengabdian kepada masyarakat ini.

C. Pembahasan

Evaluasi terhadap keberhasilan kegiatan ini dilakukan melalui beberapa cara, di antaranya adalah kuesioner yang diberikan kepada peserta setelah workshop berakhir. Dari hasil kuesioner, mayoritas peserta memberikan umpan balik positif terhadap materi yang disampaikan, terutama mengenai teknik penyusunan artikel ilmiah yang sesuai standar jurnal internasional. Banyak peserta yang merasa lebih percaya diri dalam menyusun naskah ilmiah setelah mengikuti workshop ini.

Secara keseluruhan, workshop ini dinilai berhasil dalam mencapai tujuan utamanya, yaitu meningkatkan kemampuan peserta dalam menulis artikel ilmiah. Evaluasi juga menunjukkan bahwa peserta memiliki pemahaman yang lebih baik tentang pentingnya integritas ilmiah dan praktik-praktik yang harus dihindari, seperti plagiarisme dan manipulasi data.

Dampak dari kegiatan ini dapat dilihat dari peningkatan keterampilan menulis ilmiah di kalangan peserta. Dalam beberapa minggu setelah workshop, beberapa peserta telah berhasil menyelesaikan draft artikel ilmiah mereka dan siap untuk dikirim ke jurnal internasional. Selain itu, workshop ini juga berhasil menciptakan jejaring akademik yang lebih kuat, baik di antara peserta maupun dengan narasumber.

Selain dampak terhadap individu, kegiatan ini juga diharapkan berdampak positif pada institusi, khususnya dalam meningkatkan jumlah publikasi ilmiah dari Universitas Nasional di jurnal bereputasi internasional. Workshop ini merupakan langkah strategis dalam upaya Universitas Nasional untuk meningkatkan daya saing global melalui publikasi ilmiah yang berkualitas.

BAB IV KESIMPULAN

Beberapa kesimpulan yang dapat diambil dari hasil kegiatan pengabdian kepada masyarakat yang telah dilakukan antara lain:

1. Workshop ini berhasil meningkatkan kemampuan menulis ilmiah bagi para peserta, baik dosen maupun mahasiswa. Melalui pemaparan materi oleh narasumber, peserta menjadi lebih percaya diri dalam menyusun naskah ilmiah yang sesuai dengan standar jurnal internasional, terutama dalam teknik penyajian data dan strategi publikasi.
2. Salah satu poin penting dalam workshop ini adalah penekanan pada pentingnya kejujuran dan etika dalam penulisan ilmiah. Peserta mendapatkan pemahaman mendalam tentang praktik yang harus dihindari, seperti plagiarisme dan manipulasi data, yang merupakan aspek penting dalam menjaga integritas dalam publikasi penelitian.
3. Selain manfaat bagi individu, kegiatan ini juga berdampak positif bagi institusi Universitas Nasional. Dengan adanya workshop ini, diharapkan jumlah publikasi ilmiah yang diterbitkan di jurnal internasional meningkat, yang pada akhirnya akan memperkuat reputasi institusi di tingkat global.

LAMPIRAN



UNIVERSITAS NASIONAL
FAKULTAS BIOLOGI DAN PERTANIAN

Program Studi Biologi Akreditasi Unggul
Program Studi Agroteknologi Akreditasi B
Program Studi Magister Biologi Akreditasi Baik Sekali

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SURAT TUGAS

No.451/DEK/FBP-PB/1.2/VI/2024

Dalam rangka pelaksanaan Tri Darma Perguruan Tinggi dalam bidang Pengabdian Kepada Masyarakat, Dekan Fakultas Biologi dan Pertanian, Universitas Nasional di Jakarta memberikan tugas kepada nama di bawah ini untuk melaksanakan kegiatan pengabdian kepada masyarakat, sebagai berikut:

No.	Nama	NIDN/NPM	Jabatan
1	Astri Zulfa, S.Si, M.Si.	0308048310	Dosen
2	Alvira Noer Effendi, S.Si, M.Si.	0301099701	Dosen
3	Dr. Tatang Mitra Setia	9990217729	Dosen
4	Dr. Sri Suci Utami Atmoko	0325116601	Dosen
5	Dr. Fitriah Basalamah	0326128203	Dosen
6	Dewi Pusparini	226201516005	Mahasiswa
7	Rana Andika Putri	226201516024	Mahasiswa
8	Havaliani Rivaldi	226201516031	Mahasiswa
9	Ariga Putri Wanara	226201516039	Mahasiswa
10	Ida Bagus Satya Danta	226201516007	Mahasiswa

Hari, tanggal : Kamis, 20 Juni 2024

Tempat : Laboratorium Zoologi, Universitas Nasional

Bentuk Kegiatan : Workshop Scientific Writing “Sharing Scientific Results”

Kepada nama tersebut diberikan wewenang untuk melaksanakan kegiatan seperti di atas, dan setelah selesai melaksanakan tugasnya diminta memberi laporan kepada Dekan.

Demikian Surat Tugas ini diberikan untuk dilaksanakan dengan sebaik-baiknya dan penuh tanggung jawab.



Jakarta, 3 Juni 2024

Dekan,

Dr. Fachruddin M Mangunjaya, M.Si.

Sharing scientific results

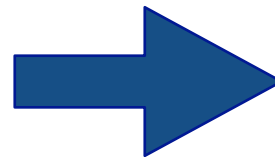
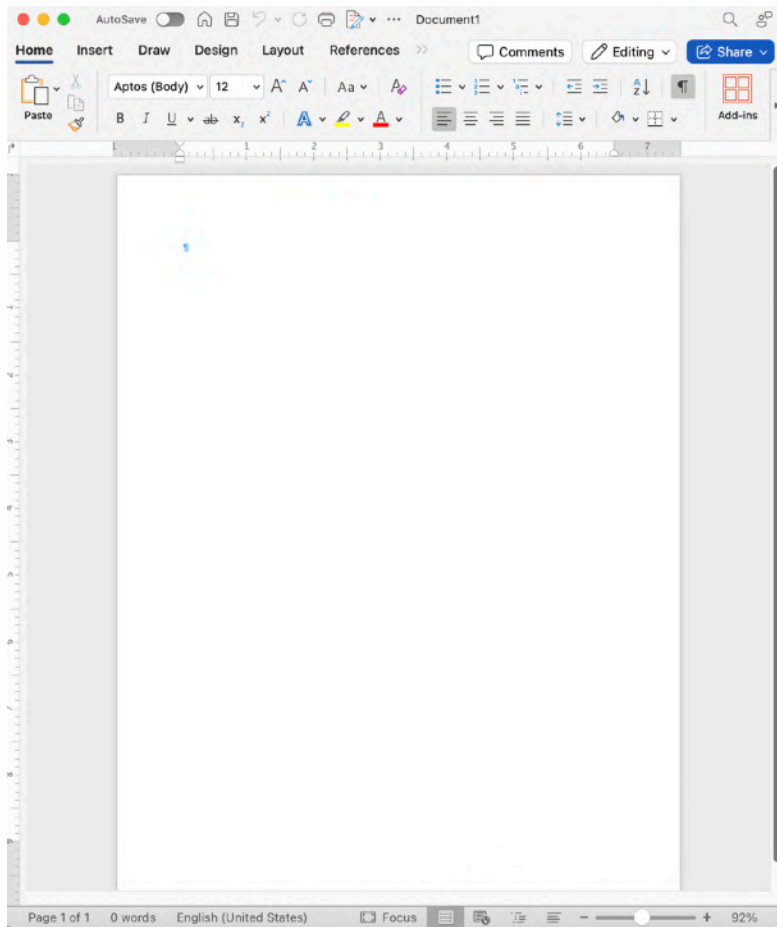
Andrew J. Marshall

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Department of Ecology and Evolutionary Biology,
Program in Computing in the Arts and Sciences,
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& School for Environment and Sustainability
University of Michigan

One Forest Project, Taman Nasional Gunung Palung



ONE | FOREST



Future coexistence with great apes will require major changes to policy and practice

Received: 19 April 2023

Accepted: 21 December 2023

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Check for updates

John C. Mitani^{1,2}, Ekwoje Abwe^{3,4}, Genevieve Campbell⁵, Tamara Giles-Vernick⁶, Tony Goldberg⁷, Matthew R. McLennan^{8,9}, Signe Preuschoft¹⁰, Jatna Supriatna¹¹ & Andrew J. Marshall^{1,12,13,14,15}

The great apes—bonobos, chimpanzees, gorillas and orangutans—are critically threatened by human activities. We have destroyed their habitats, hunted them and transmitted fatal diseases to them. Yet we also conduct research on them, try to protect them and live alongside them. They are endangered, and time is running out. Here we outline what must be done to ensure that future generations continue to share this planet with great apes. We urge dialogue with those who live with great apes and interact with them often. We advocate conservation plans that acknowledge the realities of climate change, economic drivers and population growth. We encourage researchers to use technology to minimize risks to great apes. Our proposals will require substantial investment, and we identify ways to generate these funds. We conclude with a discussion of how field researchers might alter their work to protect our closest living relatives more effectively.

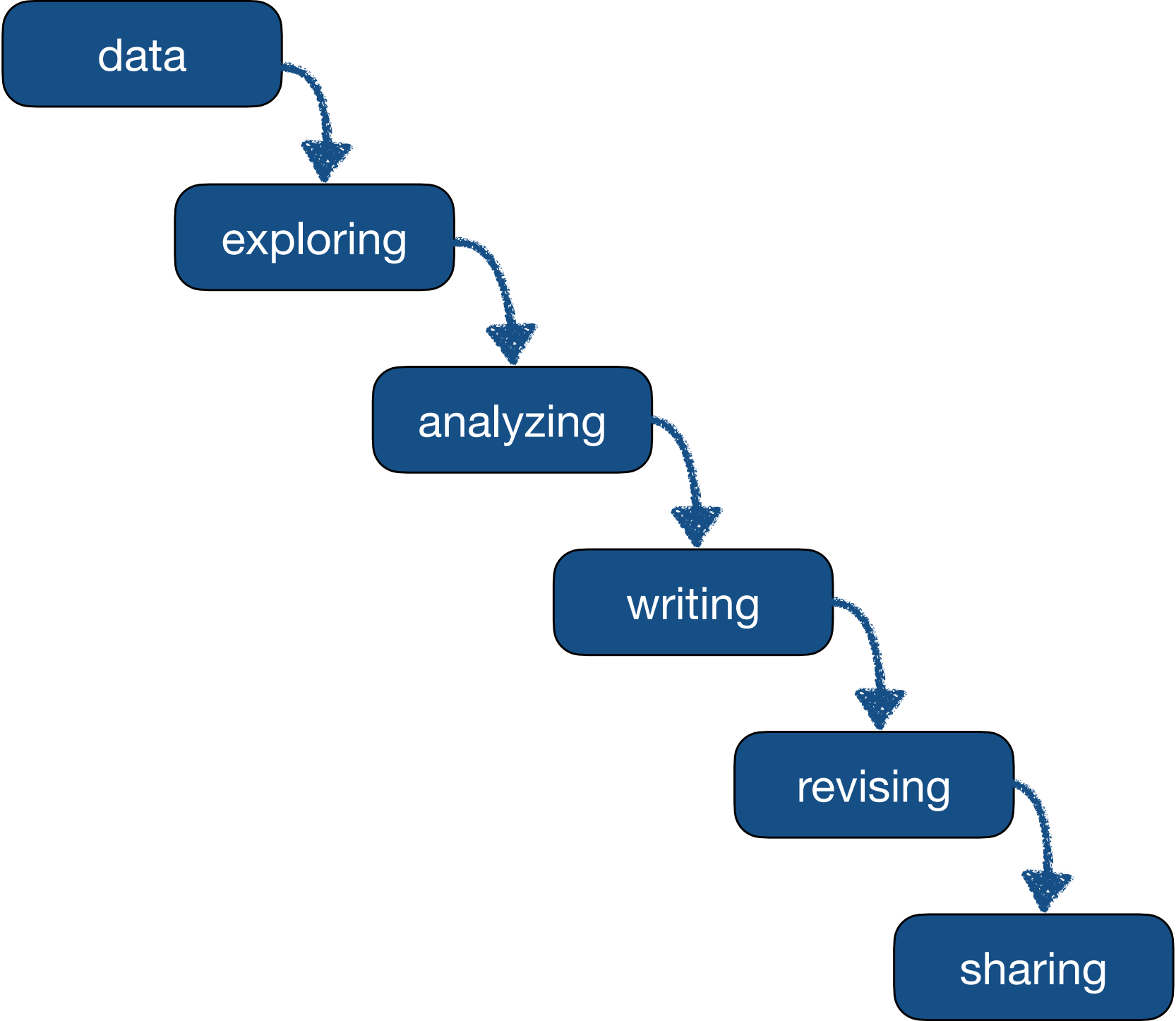
The nonhuman great apes (hereafter, great apes)—bonobos, chimpanzees, gorillas, and orangutans (Fig. 1)—are humankind's closest living relatives. There are compelling reasons to protect them. Great apes live in tropical habitats and protecting them safeguards other threatened species in areas of high biodiversity. As keystone species¹, they can have a role in preserving ecosystems², which must be maintained to ensure human well-being and survival³. Great ape tourism can also provide income that improves the lives of people in some range countries⁴. The similarities between great apes and humans generate considerable scientific and media interest, making them flagship species that support the conservation of other species⁵. These similarities also raise scientific⁶, moral⁷, ethical and legal⁸ considerations that underscore our responsibility to protect them. Recognition of these matters has fuelled substantial investment in great ape conservation⁹. For example, over one billion US dollars was spent to protect orangutans between 2000 and 2019¹⁰. Nevertheless, populations of all seven currently recognized

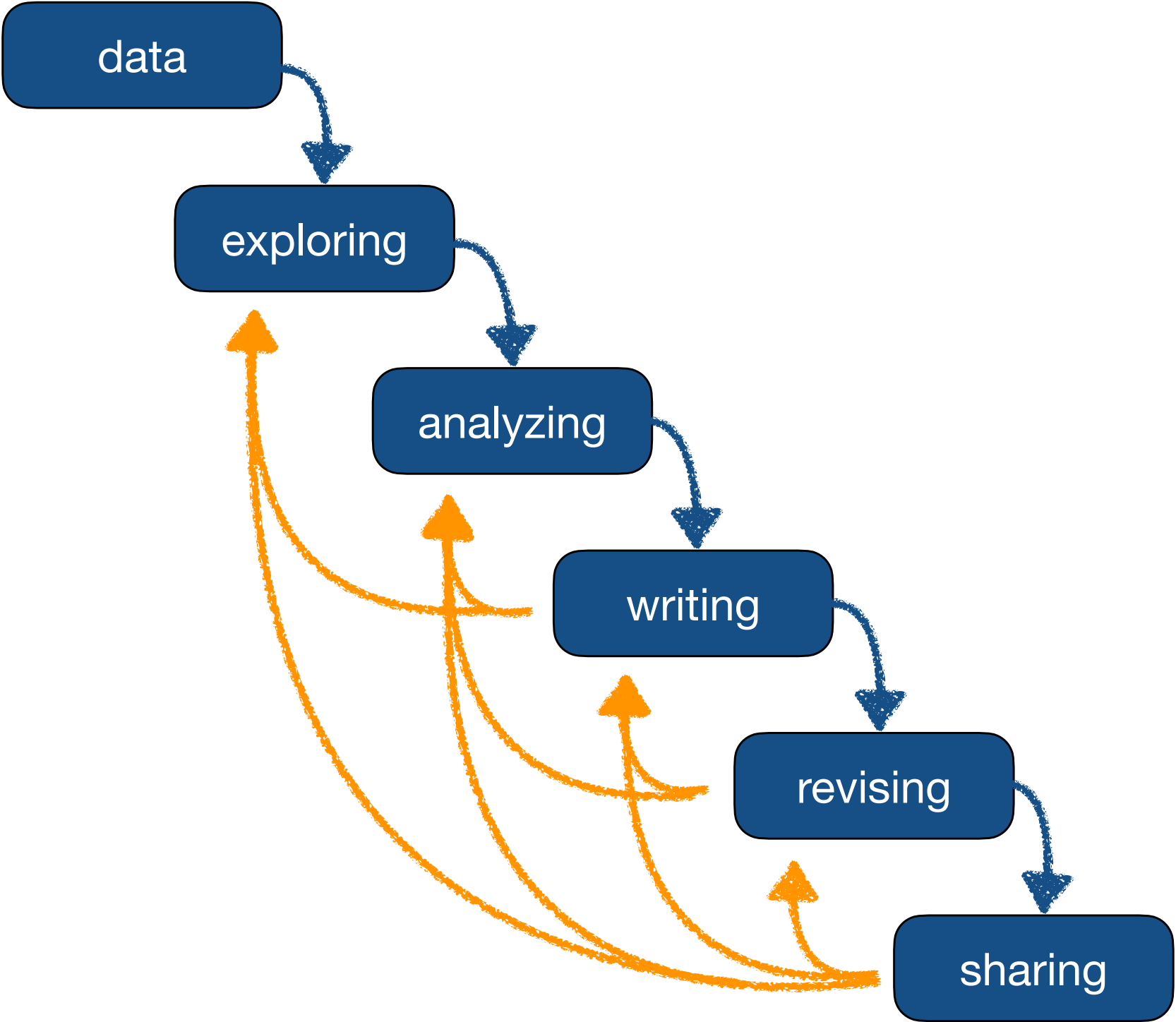
great ape species—bonobos; chimpanzees; eastern and western gorillas; and Bornean, Sumatran and Tapanuli orangutans—continue to decline, and their 'endangered' and 'critically endangered' designations reflect their high risk of extinction in the wild¹¹. Time is running out to save these extraordinary animals, and we need more effective conservation strategies. In this Perspective, we make some proposals designed to ensure that great apes continue to survive now and into the future (Fig. 2). The views expressed here draw on prior research and an extensive literature, but also derive from our personal experience. Collectively, we have spent over 200 years working with great apes. We begin by briefly reviewing their status in the wild.

The current situation

The threats to wild great apes are well known and primarily include habitat loss, hunting and disease (Fig. 3). Consequently, prior efforts to conserve them and their ecosystems have focused on creating areas

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Honesty

data

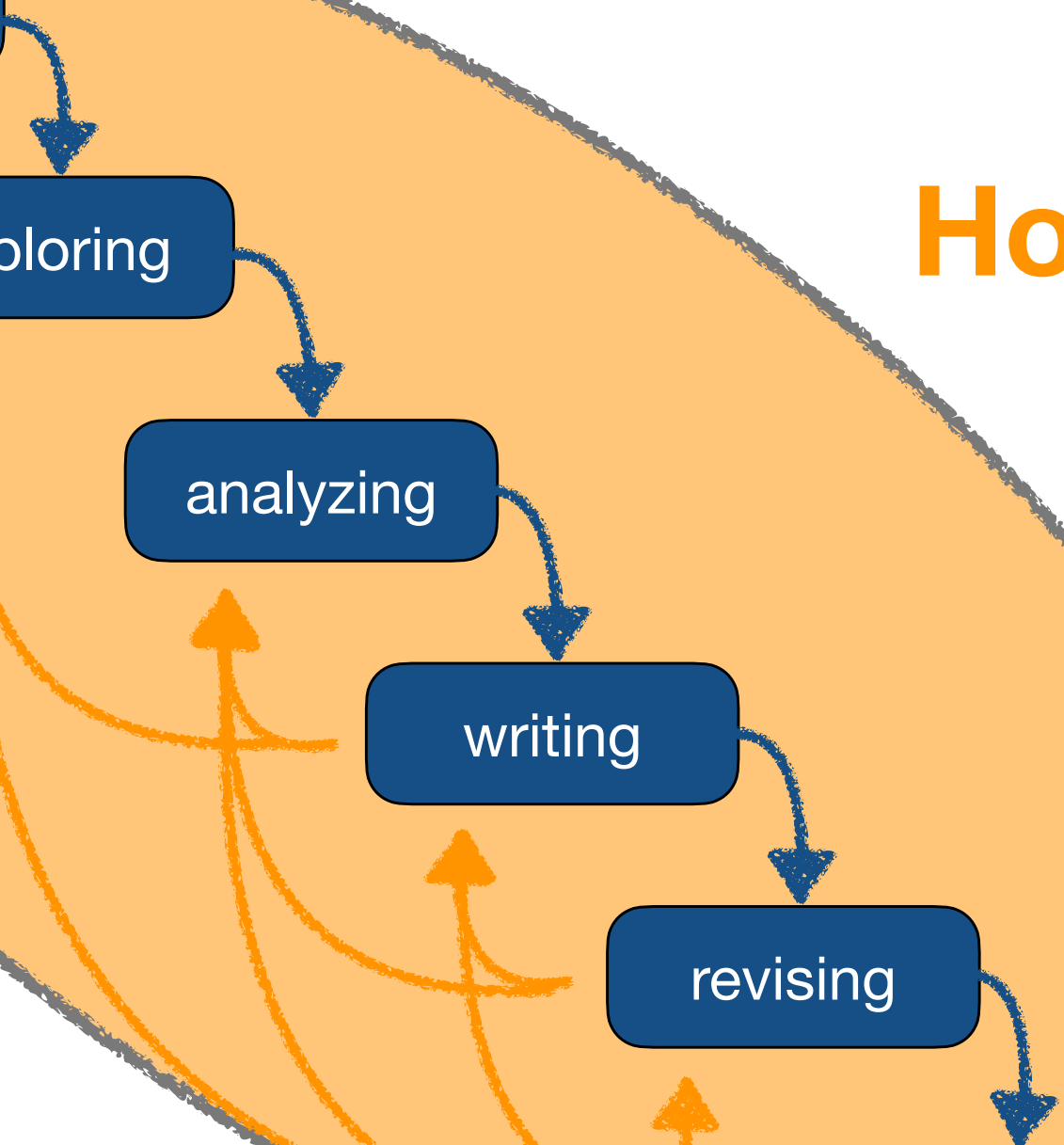
exploring

analyzing

writing

revising

sharing



**“Dishonest science”
is not science.
And it is worse than useless.**

Honesty

- Honesty is important above all else.
- Mistakes are okay. Lies are not.
- Do not make up data. Ever. Do not delete ‘inconvenient’ data. Ever.
- Report all statistical tests you do. No “p-hacking”.
- Clearly report uncertainty (error) and bias.
- Make honest, clear data visualizations.
- Cite appropriate references in appropriate ways.
- Treat co-authorship in a principled way.

Open science

- One effective way to help keep yourself honest to is to practice open, reproducible science.
- Share all data and code necessary to replicate your paper.
- This can be scary, and intimidating.
- This can (if you are lucky) result in you and your work being subject to additional scrutiny and critique.
- This is good! It makes our work better.





andrewjohnmarshall



Overview

Repositories 16

Projects

Packages

Stars



Andrew J. Marshall
andrewjohnmarshall · he/him

tropical ecologist, conservation biologist, and biological anthropologist; coding primarily in R, dabbling in Python and Julia

Popular repositories

[Customize your pins](#)

[restoring_red_apes](#)

Public

Data and code for Meijaard et al. 2023 "Expert guided analysis for restoring the red ape in a whole or half earth context"

R 1

[leech_distribution](#)

Public

Data and code for Nelaballi et al. 2022 "Impacts of abiotic and biotic factors on terrestrial leeches in Indonesian Borneo"

HTML

[gp_orangutan_dispersion](#)

Public

Data and code for Marshall et al. 2021 "Biotic and abiotic drivers of dispersion dynamics in a large-bodied tropical vertebrate, the Western Bornean orangutan"

R

[neopterin_validation](#)

Public

Data and code for Lucore et al. 2022 "Validating urinary neopterin as a biomarker of immune response in captive and wild capuchins monkeys"

155 contributions in the last year

[Contribution settings](#)

gp_orangutan_dispersion Public Pin Unwatch 1 Fork 0 Star 0

main Go to file + <> Code

Table with 3 columns: File Name, Action, and Time Ago. Rows include data files, DSdata.R, DataFormat.R, ORAN_DS.txt, ORAN_DS_script.R, ORAN_OUTPUT.Rdata, ORAN_figs.Rmd, and README.md.

About

Data and code for Marshall et al. 2021 "Biotic and abiotic drivers of dispersion dynamics in a large-bodied tropical vertebrate, the Western Bornean orangutan"

- Readme, Activity, 0 stars, 1 watching, 0 forks

Releases

No releases published. Create a new release



gp_orangutan_dispersion

2021-06-16

This folder contains all code necessary to replicate analysis, results, and figures for Marshall et al. orangutan analysis in *Oecologia*.

<https://doi.org/10.1007/s00442-021-04964-1>

Title: Biotic and abiotic drivers of dispersion dynamics in a large-bodied tropical vertebrate, the Western Bornean orangutan

Authors: Andrew J. Marshall*, Matthew T. Farr, Lydia Beaudrot, Elise F. Zipkin, Katie L. Feilen, Loren G. Bell, Endro Setiawan, Tri Wahyu Susanto, Tatang Mitra Setia, Mark Leighton, and Heiko U. Wittmer

*Corresponding author: ajmarsha@umich.edu

This code requires the following data files:

- actual_m_walked.csv
- Matrix_rain
- Matrix_tmax.csv
- Matrix_tmin.csv
- Matrix1_OHcounts.csv
- Matrix2_StemsMRfruits.csv
- Matrix3_ObservationCovariates.csv
- Matrix4_SiteCovariates.csv
- Ntimes_sitelength_walked.csv

andrewjohnmarshall Upload data files bff8102 · 2 years ago

Table with 3 columns: Name, Last commit message, Last commit date. Lists files like Matrix1_OHcounts.csv, Matrix2_StemsMRfruits.csv, etc.

Workflow:

The file "DataFormat.R" uses the raw *.csv data files listed above, formats them for analysis, and writes them to the file "DSdata.R".

The file "ORAN_DS_script.R" runs the BUGS model drawing data from "DSdata.R". The model results are written to the file "ORAN_OUTPUT.Rdata".

The file "ORAN_figs.Rmd" draws data from "ORAN_OUTPUT.Rdata" and produces the figures presented in the paper and supplemental online material. The values presented in the tables are also calculated.

All code ran and produced the relevant output in R 4.1.0 on 2021-06-16 using an M1 Mac Mini running OS 11.4.

This repo is a duplicate of information available at <https://figshare.com/articles/software/code/14731890> and <https://doi.org/10.6084/m9.figshare.14731866>

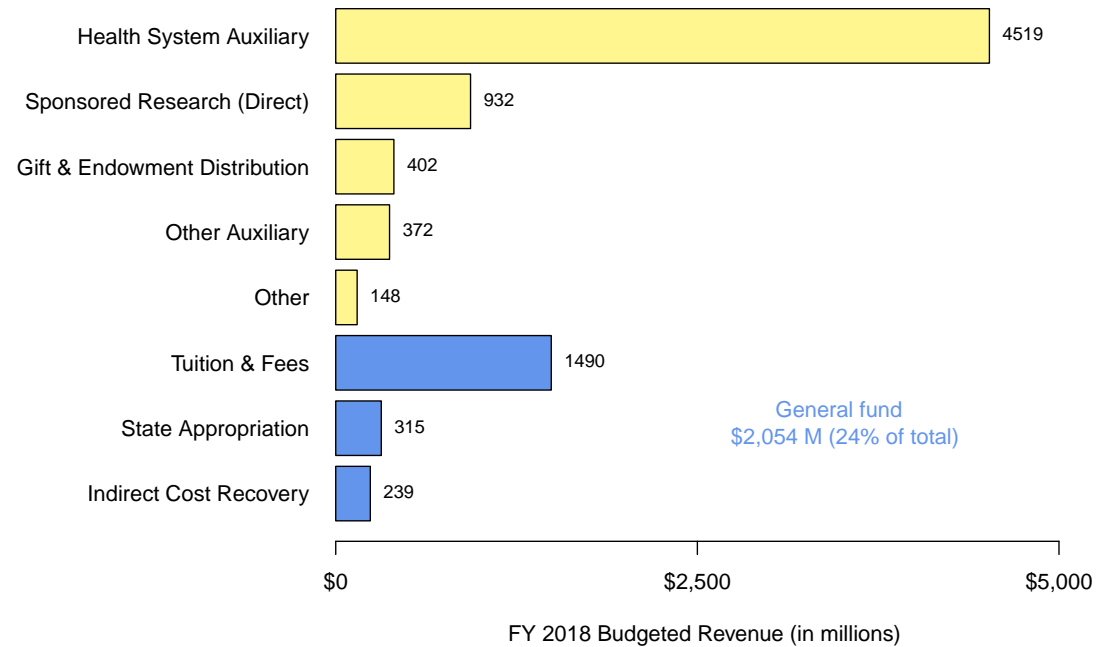
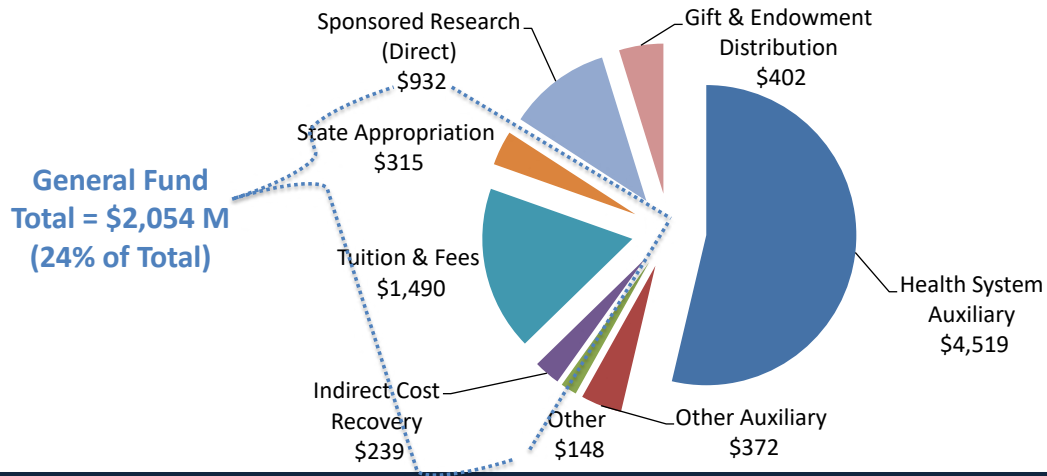
Graphs

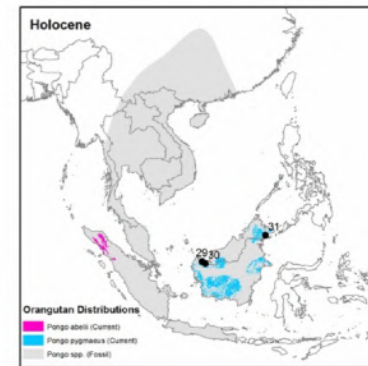
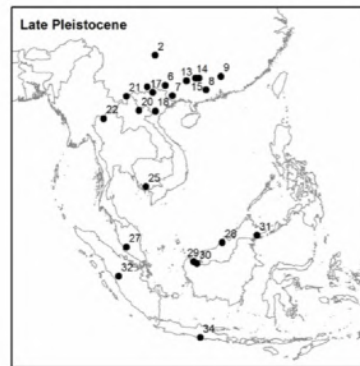
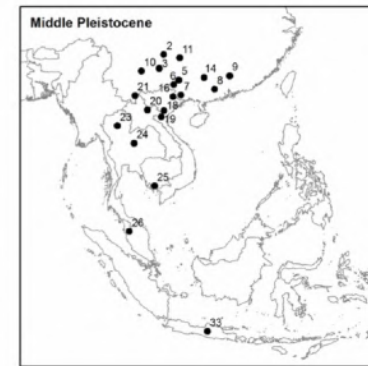
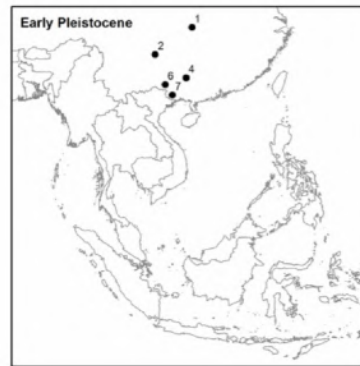
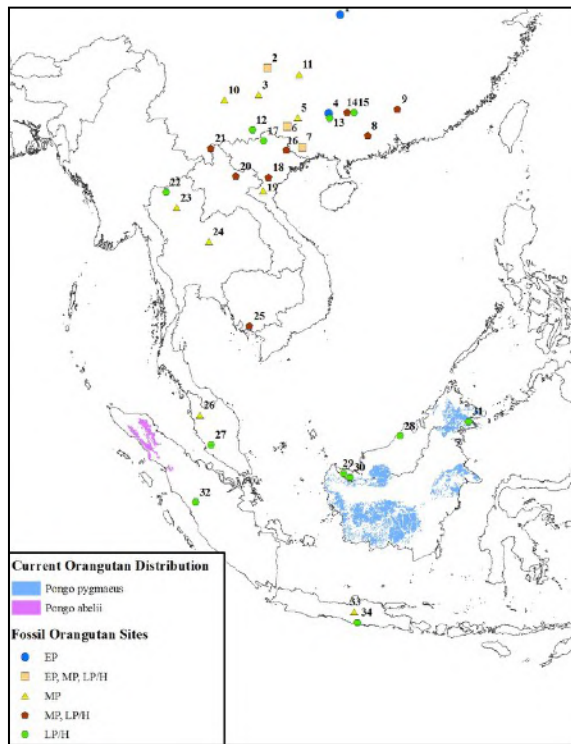
**Good graphs make science
communication more effective.**

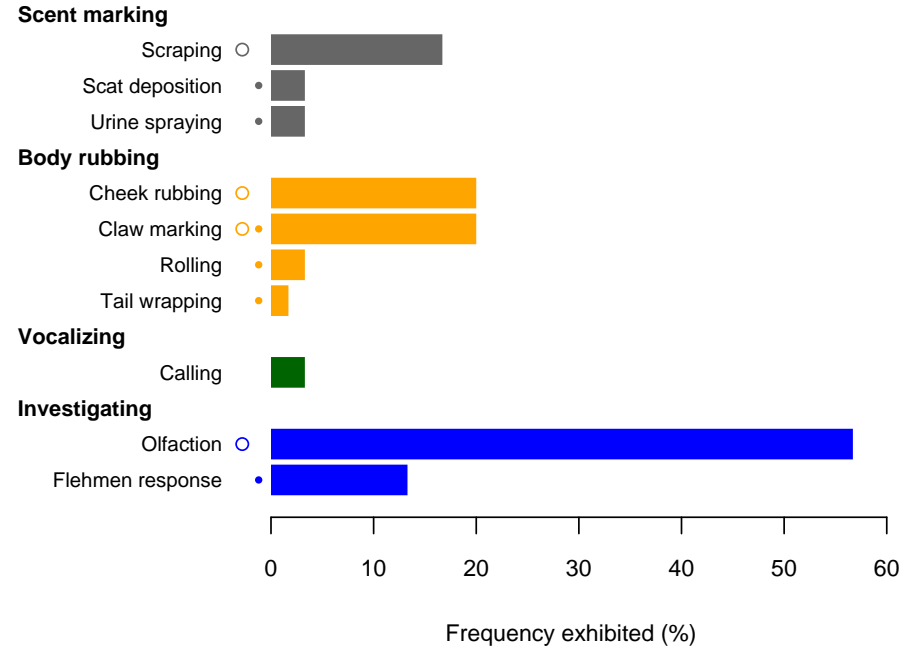
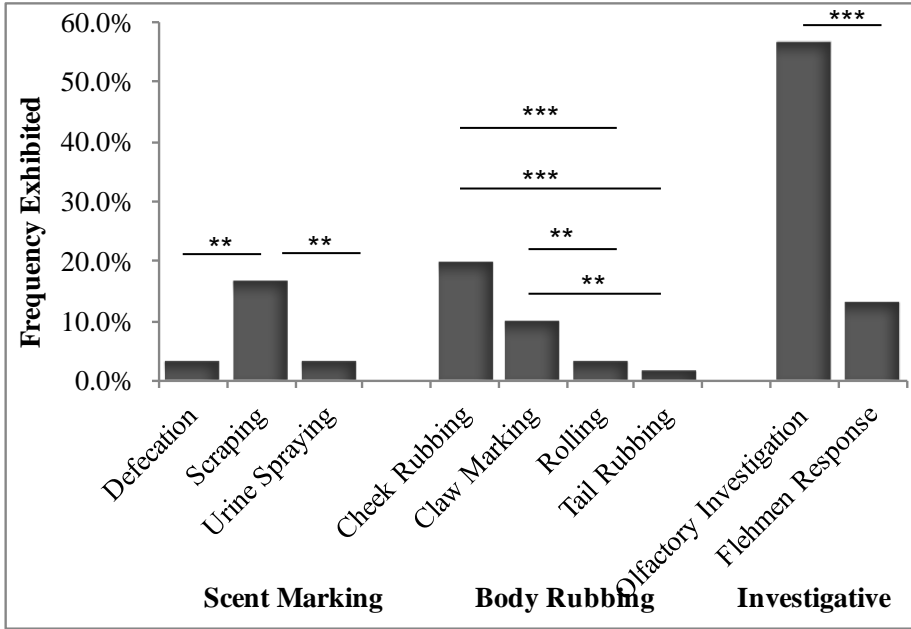
**Fancy statistics cannot make up for bad data.
Neither can fancy graphs.**

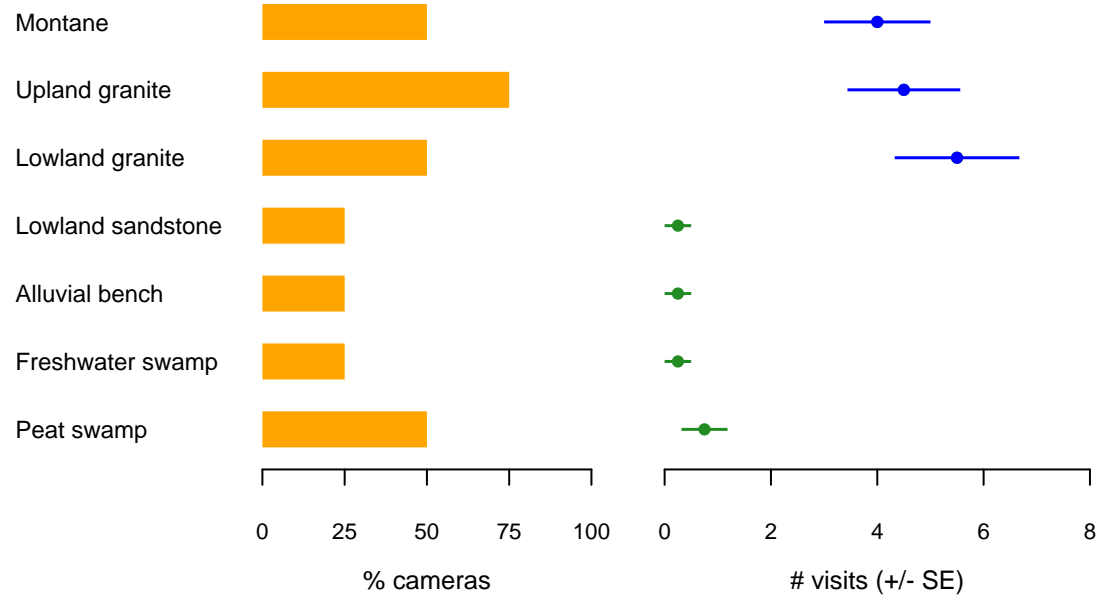
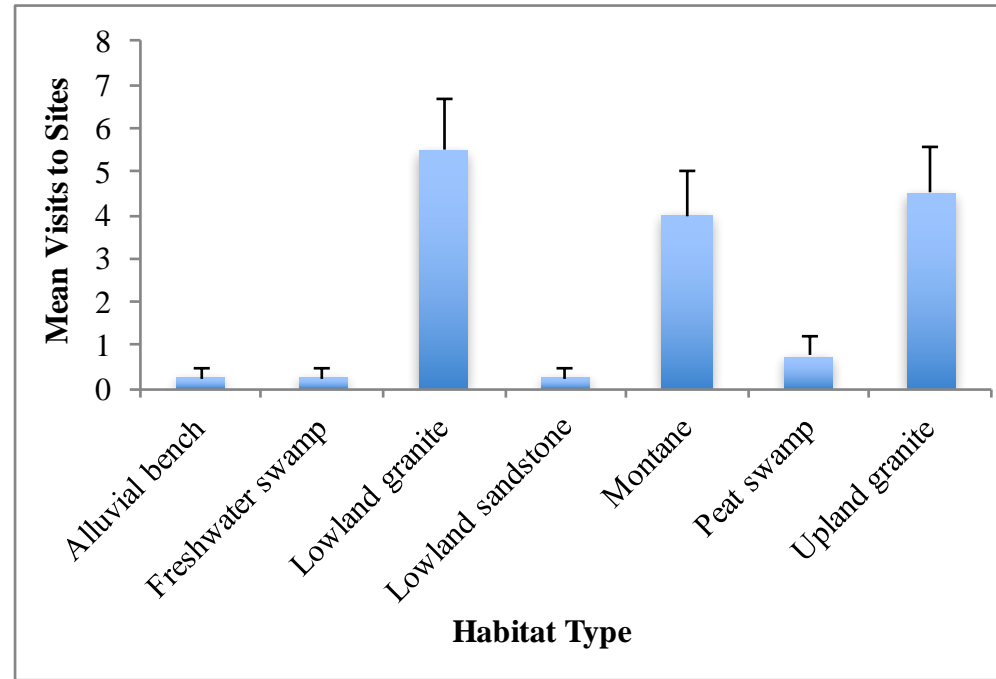
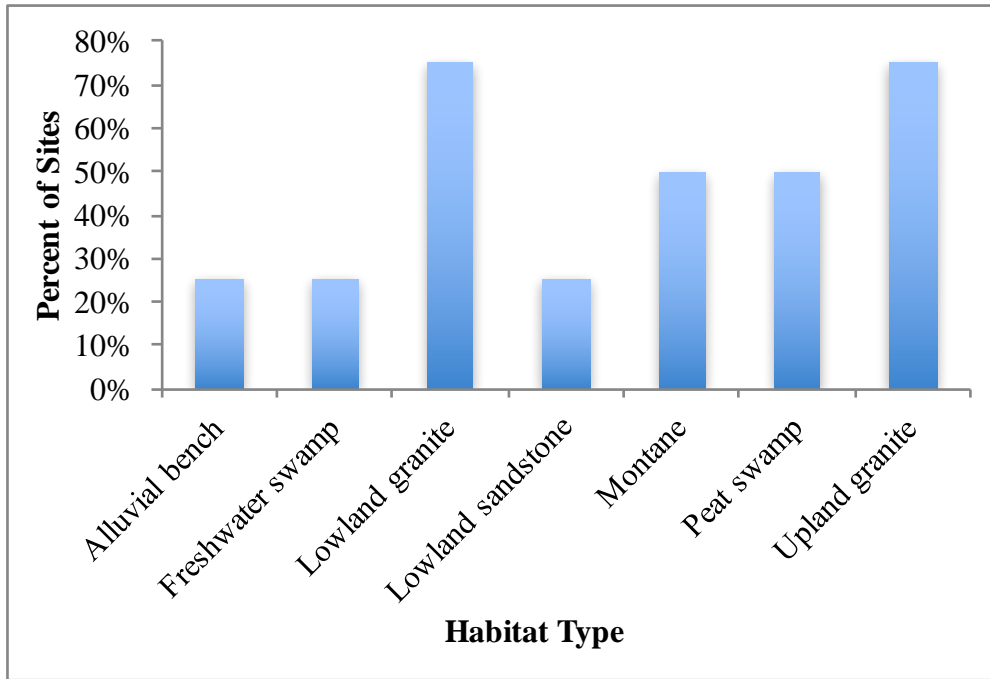
FY 2018 Budgeted Revenue (in millions)

Total = \$8,416 M









Scientific writing

Be clear about why you are writing the paper!

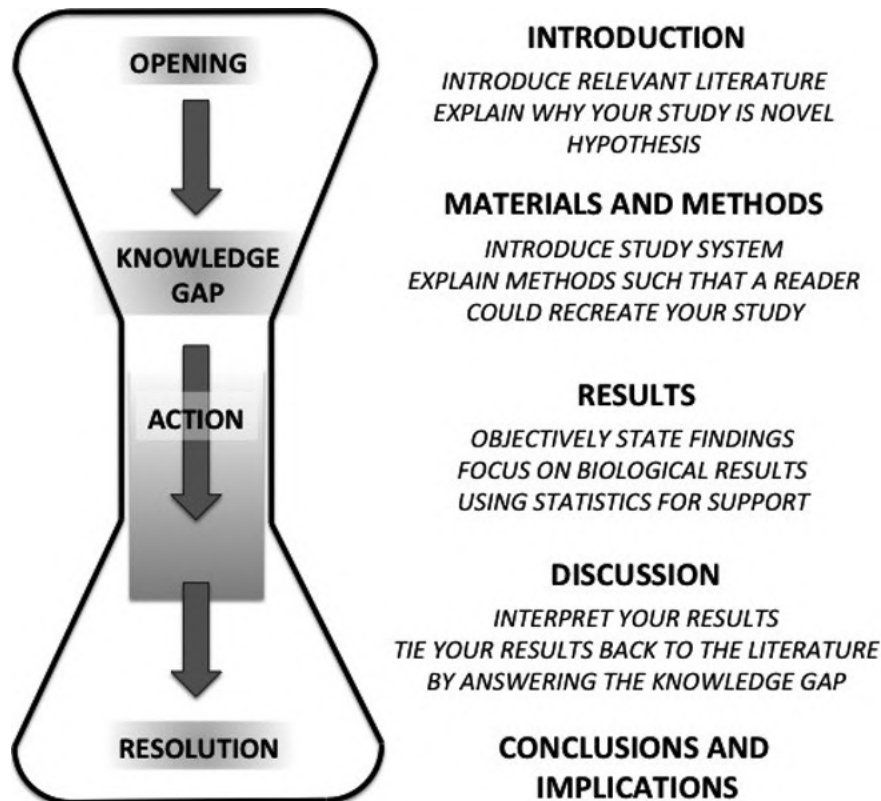
- Start with a simple statement of the main idea of the paper– i.e., the key point, the “take home message”, “the elevator pitch”.
- State it in one or two sentences. What have you found, and why is it important?
- If you cannot do this, you are not ready to write the paper.
- Return to this statement at various stages in the writing process.

Why → where

- Let the “why” of the paper help you to determine where you will submit it. *
- Journals have different requirements for length, format, # of figures, # of citations, etc.
- Follow your target journal’s guidelines- this will save time down the road.
- Not sure about where to publish?
 - ask mentors, colleagues for suggestions
 - look for where similar work has been published

*other things may be important, too... like publication time, page charges, etc

Don't begin at the beginning



Turbeck et al. 2016. *Bulletin Ecologic Soc America*

You do not have to write the paper in this order.
Usually, this is not the easiest approach.

Begin writing while you analyze data

- The process of writing an effective scientific paper often starts long before you sit down to “write the paper”.
- Start thinking about the paper well in advance, have it focus and direct your data exploration and analysis.
- While doing an analysis, when you get a result that you feel you will want to share, immediately:
 1. write the analytical methods as you will in the paper
 2. write the results as you will in the paper
 3. make a good figure and write its caption (if relevant)

Statistical analysis

We used a model comparison and selection approach for all analyses (Burnham & Anderson 2002) and standardized all predictors by subtracting the mean and dividing by two standard deviations to permit direct comparison of effect sizes (Gelman et al. 2020). We plot raw values in figures, but use standardized predictors in all analyses. To account for the hierarchical nature of our sampling regime, for all analyses we used multi-level models with varying intercepts by site. We conducted analyses and produced figures in R 4.2.1 (R Core Team 2022) implemented in the RStudio 2022.07.0 Release for macOS (RStudio Team 2022). We used core functions of the {tidyverse} (Wickham et al. 2017) to wrangle and visualize our data, extended using functionality in {ggpubr} 0.4.0 (Kassambara 2020) and {ggrepel} 0.9.1 (Slowikowski 2021) for plotting. Data files and code necessary to reproduce all analyses, results, and figures are available at [{insert github link}](#).

For all analyses we fit a variety of ecologically plausible models (including interactions, when warranted) that used alternative distributions appropriate to the outcome of interest (e.g., beta and zero-inflated beta distributions for proportional outcomes; negative binomial and zero-inflated Poisson distributions for counts; Gaussian and gamma distributions for continuous outcomes) and selected the best model based on AIC (or when sample sizes were small, AICc). When multiple models had substantial weight, while we present the results of the top model only, we examined the β coefficients in each model to ensure the magnitude and direction of the estimated effect sizes were consistent across models. In most analyses we fit models using {gamlss} (Rigby & Stasinopoulos 2005), as it supports a wide variety of distributions for outcome variables, reporting only the linear effects (μ coefficients). In one instance (zero-inflated negative binomial models for Dipterocarp abundance that included interactions), models exhibited poor convergence and produced implausible β coefficient estimates and we therefore present and base inferences on an alternative appropriate distribution. We included survey effort as an offset (i.e., setting its β coefficient to 1) in all models of forest structure to account for minor differences in sampling effort among transects. For analyses predicting

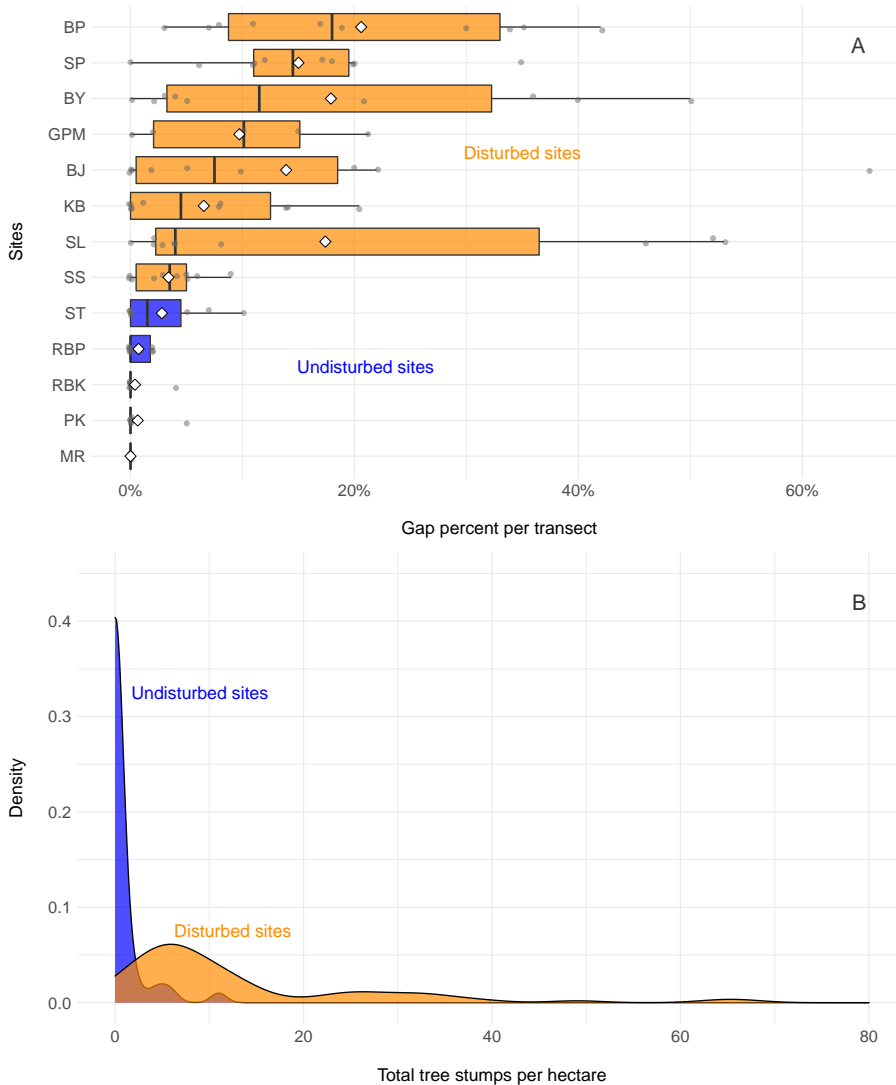
binomial models for Dipterocarp abundance that included interactions), models exhibited poor convergence and produced implausible β coefficient estimates and we therefore present and base inferences on an alternative appropriate distribution. We included survey effort as an offset (i.e., setting its β coefficient to 1) in all models of forest structure to account for minor differences in sampling effort among transects. For analyses predicting orangutan nest density we used `{lme4}` (Bates et al. 2015) to facilitate production of coefficient plots, but results of the same models fit in `{gamlss}` were very similar.

We used principle components analysis to compare plant community composition among sites and transects as a function of disturbance using the R packages `{FactoMineR}` 2.4 (Le et al. 2008) and `{factoextra}` 1.0.7 (Kassambara and Mundt 2020). We explored patterns at the plant family and genus level, and conducted analyses using all stems, trees only, and lianas only. We used `{vegan}` 2.5-7 (Oksanen et al. 2020) to calculate Shannon's and Simpson's diversity indices, taxonomic richness, and taxonomic evenness (Pielou's J) at the genus and family level for sites and transects.

To estimate the structure of disturbed sites prior to disturbance, we calculated the total tree stems on each transect as the sum of standing trees plus stumps from felled trees. Similarly, we estimated the floristic composition of sites prior to disturbance by including felled trees that could reliably be identified to genus. Stumps from felled trees were excluded from other analyses.

We consider predictors to be reliable if their 95% confidence intervals do not overlap zero. We report back-transformed β coefficients so results can be interpreted on the natural scale. Thus, β coefficients are interpreted as the multiplicative change in odds associated with a one standard deviation increase in the predictor and β coefficients values less than 1 reflect negative effects and those greater than 1 indicate positive effects.

Effects of disturbance on forest structure



Disturbed sites had substantially higher gap percent per transect (average sitewide mean percent gap = 13.1%, range = 3.4–20.6) than undisturbed sites (average sitewide mean percent gap = 0.9%, range = 0–2.8%, Fig 1A). Disturbance classification was a strong and reliable predictor of the percent gap for an individual transect (zero-inflated beta model, $n = 123$ transects, $\beta_{\text{disturb}} = 2.1$, 95% CIs $\beta_{\text{disturb}} = 1.1\text{--}2.9$). Disturbed sites generally had larger numbers for mean total stumps per hectare (mean (\bar{x}) = 13.3, range 9.1–25.2) than undisturbed sites ($\bar{x} = 0.7$, range = 0–3.1); disturbed sites had larger numbers of both small ($\bar{x}_{\text{disturb}} = 11.9$, range = 6.1–25.1; $\bar{x}_{\text{undisturb}} = 0.6$, range = 0–3) and large stumps ($\bar{x}_{\text{disturb}} = 1.4$, range = 0.1–3; $\bar{x}_{\text{undisturb}} = 0.02$, range = 0–0.1). Disturbance classification was a strong and reliable predictor of the total stumps per hectare for an individual transect (negative binomial model: $n = 123$ transects, $\beta_{\text{disturb}} = 53.1$, 95% CIs $\beta_{\text{disturb}} = 30.4\text{--}70.9$; Fig 1B). Results were comparable when we restricted analyses to small (< 80 cm DBH) stumps (negative binomial model: $n = 123$ transects, $\beta_{\text{disturb}} = 48.0$, 95% CIs $\beta_{\text{disturb}} = 26.3\text{--}67.9$) or large (≥ 80 cm dbh) stumps only (zero-inflated Poisson model: $n = 123$ transects, $\beta_{\text{disturb}} = 48.5$, 95% CIs $\beta_{\text{disturb}} = 6.7\text{--}184.8$). The sites we classified as undisturbed had low levels of both percent gaps per transect and stumps per ha (Figs 1, S1).

Start with the figures

- Your figures are what most readers will focus on and remember.
- Plan the figures you want to present, and the order in which you want to present them. Be logical.
- Can use flash cards, slide layout view

Extreme ecological specialisation in a rainforest mammal, the Bornean tufted ground squirrel, *Rheithrosciurus macrotis* Gray, 1867

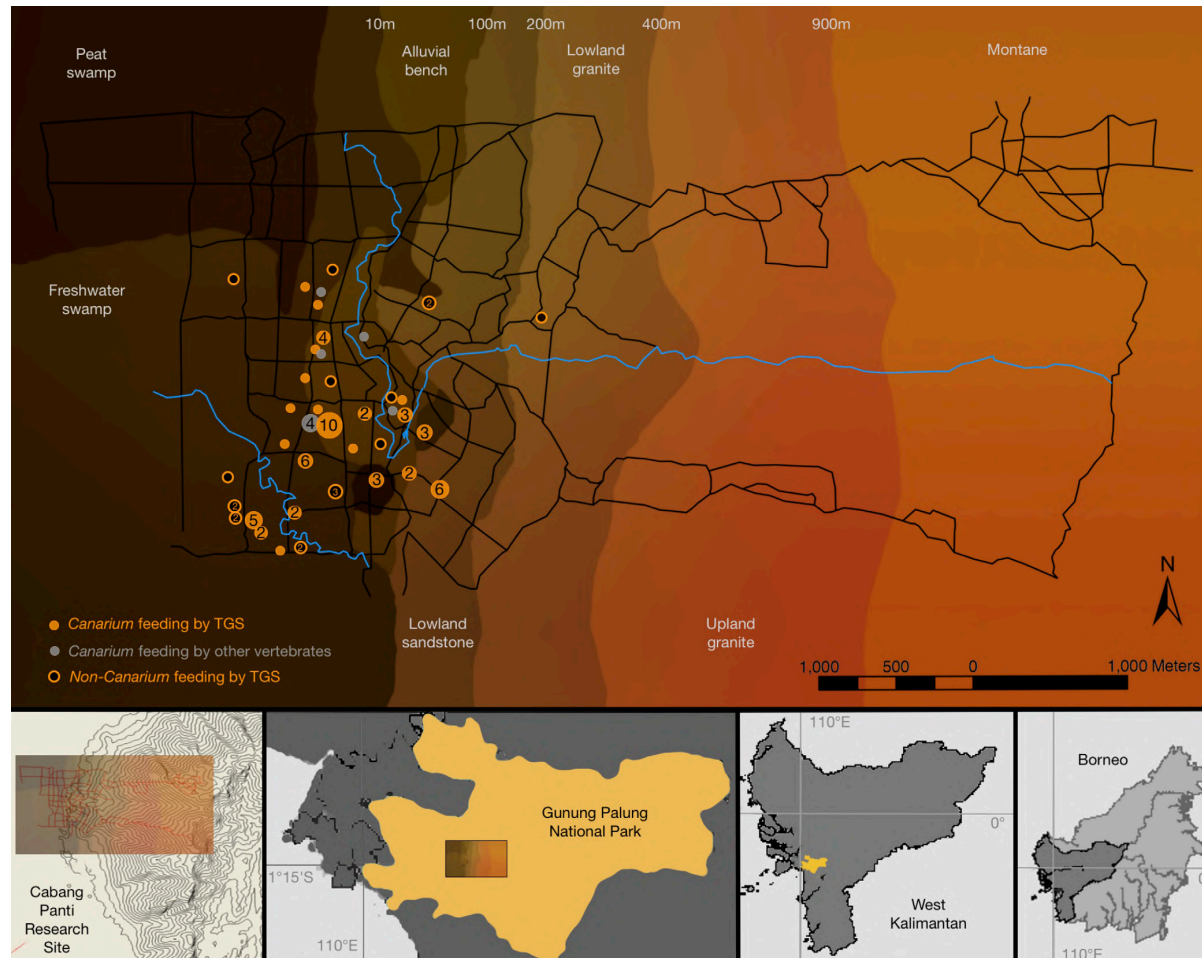
Andrew J. Marshall^{1*}, Erik Meijaard² & Mark Leighton³

Abstract. The endemic Bornean tufted ground squirrel, *Rheithrosciurus macrotis*, has attracted great interest among biologists and the public recently. Nevertheless, we lack information about the most basic aspects of its biology. Here we present the first empirical data on the feeding ecology of tufted ground squirrels and use data from 81 sympatric mammalian and avian vertebrates to place it within a broad comparative context. *Rheithrosciurus macrotis* is a seed predator and shows much more extreme ecological specialisation than any other vertebrate, feeding on a far smaller subset of available plant foods and demonstrating a greater reliance on a single plant species—*Canarium decumanum*. Our results suggest that *R. macrotis* plays an important, previously unknown role in the ecology of Bornean lowland forests and highlight how much we have yet to learn about the fauna inhabiting some of the most diverse, and most severely threatened, ecosystems on the planet.

Key words. Borneo, *Canarium decumanum*, diet breadth, Indonesia, keystone species, seed predation

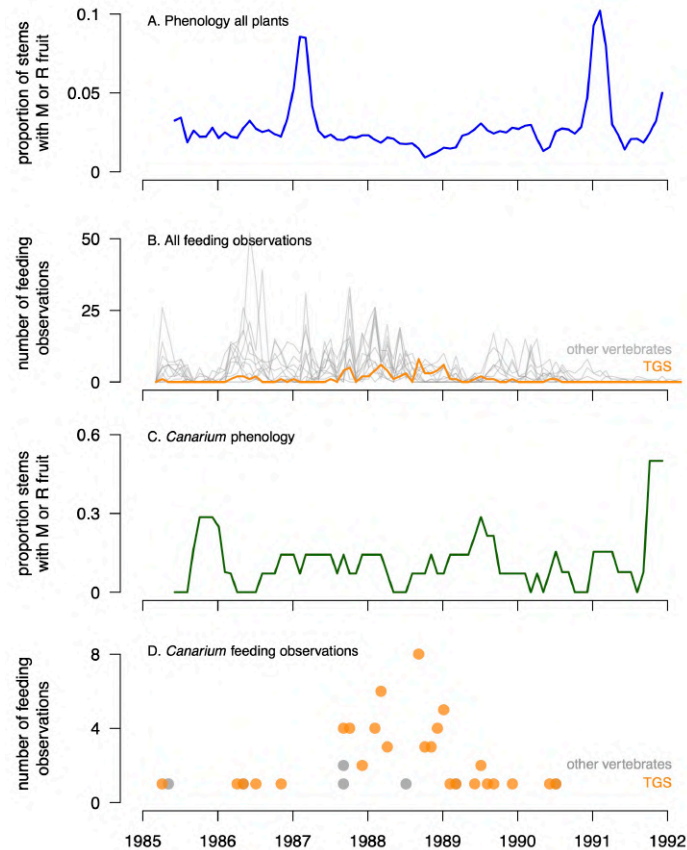
Extreme ecological specialisation in a rainforest mammal, the Bornean tufted ground squirrel, *Rheithrosciurus macrotis* Gray, 1867

Andrew J. Marshall^{1*}, Erik Meijaard² & Mark Leighton³



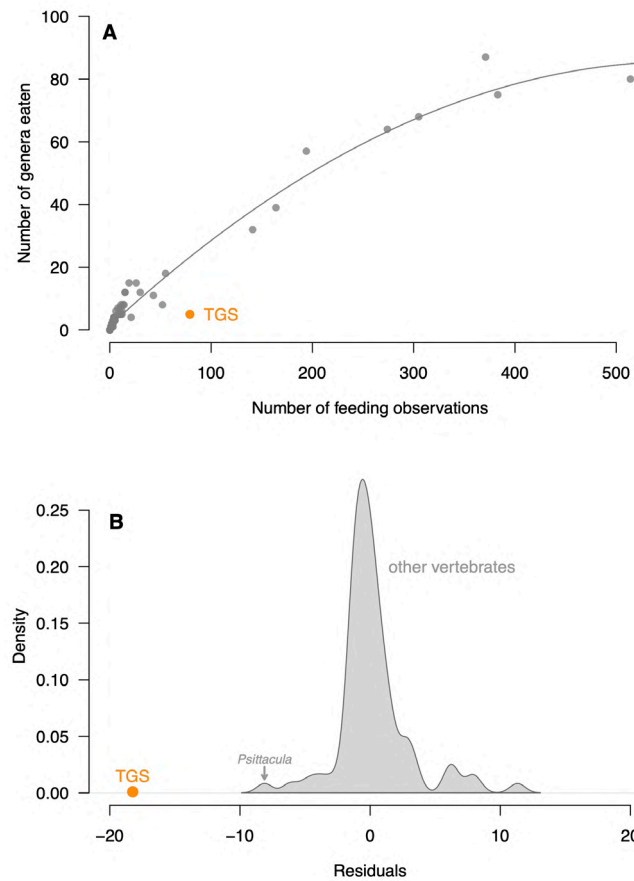
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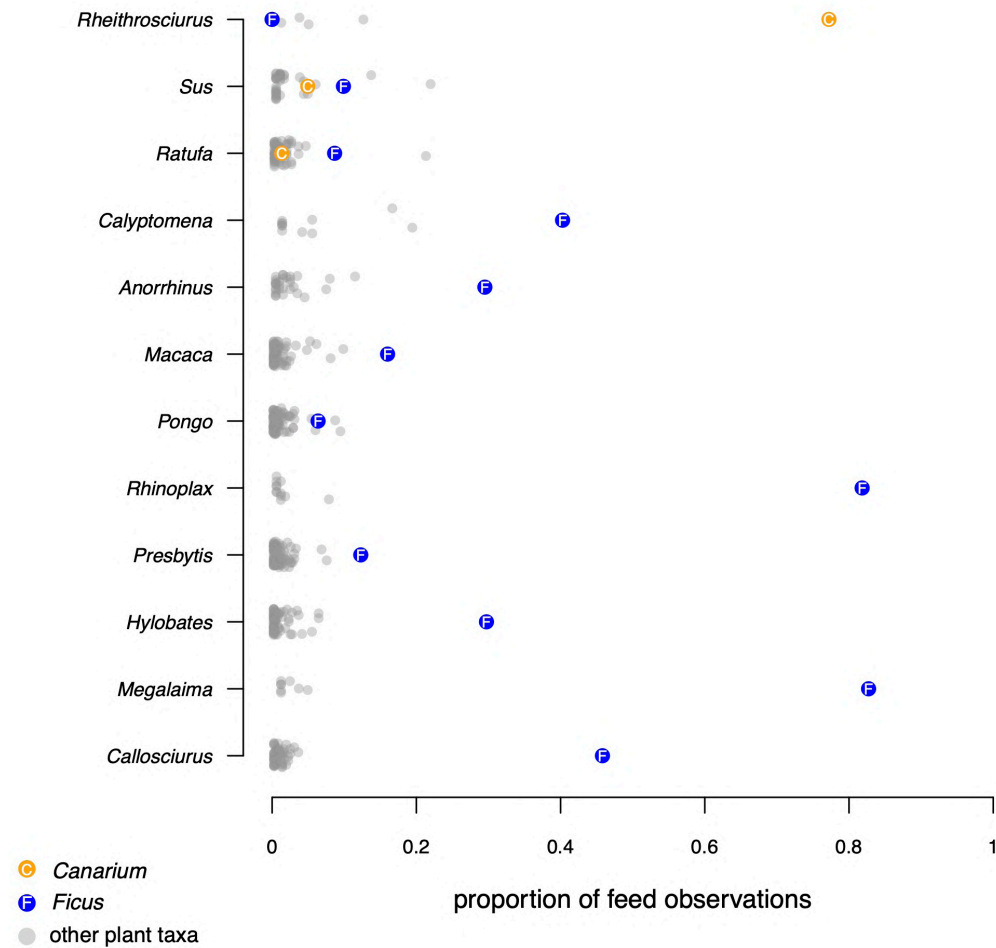
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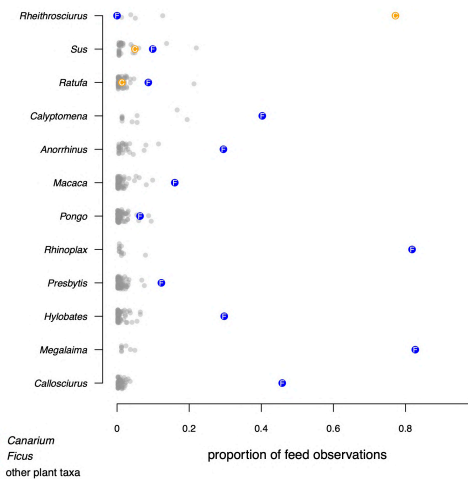
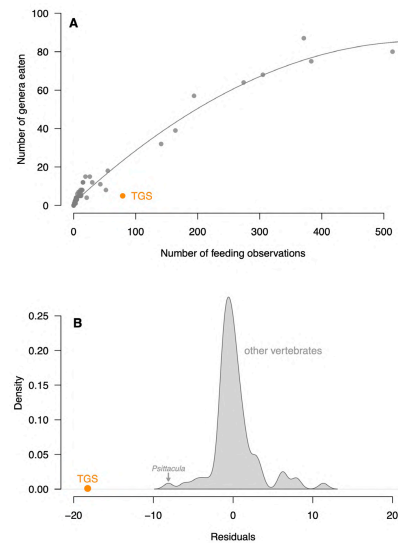
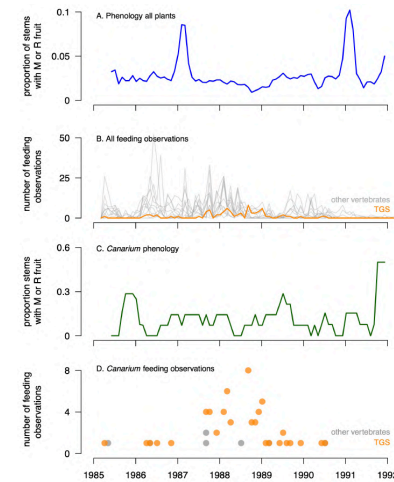
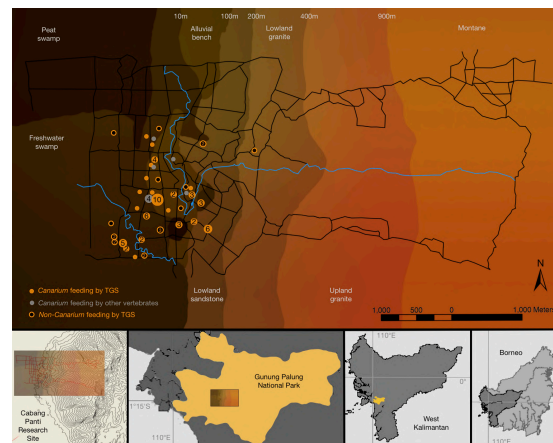
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Next, finish the methods and results

- If you have written out your analytical methods and results and figure captions during the analysis process, this part will be partially complete already.
- Complete methods section, including how and where data were collected.
- Complete results section, including specific references to figures. Make sure it flows logically.
- You are now already almost 50% done... this is a good time to get preliminary feedback.

Then, work on discussion and conclusions

- Start with brief summary of the most important results (stated slightly differently than in the paper, to aid understanding)
- Then discuss why your results are important, how they contribute to scientific understanding
- Place your results in the context of other work on this topic, considering both similarities and differences between what you and others have found.

DISCUSSION

Our systematic data on the feeding ecology of Bornean tufted ground squirrels confirms previous anecdotal descriptions of the species (Jentink, 1898; Phillipps & Phillipps, 2016). We provide clear evidence that the species is a seed predator and focuses its feeding on plants bearing extremely hard seeds, especially *Canarium decumanum* and *Mezzetia leptopoda*. Two measures indicate that *R. macrotis* is the most specialised vertebrate taxon in this forest. First, when we controlled for sampling effort, the taxonomic richness of *R. macrotis* diets is far less than that of any other vertebrate frugivore at Cabang Panti (Fig. 3A, B). These results are consistent whether comparisons are based on all feeding observations by all vertebrates in our data set or are restricted to only mammals, only squirrels, or only observations of feeding on seeds. Second, tufted ground squirrels focus on a single plant genus, *Canarium*, far more than any other vertebrate focuses on a single plant genus, with the exception of feeding on the diverse genus *Ficus* (see below). In this context, it is interesting that one of the first descriptions of *R. macrotis* explains that an individual was “[s]hot in the deep jungle during the morning after heavy rainfall, when the animal was looking for fruit under a *Canarium* tree...” (Jentink, 1898: 125, translated from German).

Conclusion

Our evaluations of scenarios have implications for the global debate regarding the future of nature conservation (Soulé, 2013; Kareiva, 2014; Wilson, 2016; Büscher & Fletcher, 2019). They indicate that the local consequences of large-scale, top-down conservation proposals will vary with differing socio-ecological contexts and that these one-size-fits-all visions will have unintended consequences. Better nature conservation will not be achieved by grand designs but rather requires locally specific interventions that make the best of a situation: ‘muddling through’, as it has been termed (Sayer et al., 2008). Nevertheless, these grand de-

Next, write the introduction

- Set the stage for your paper. Start with the big “why” and why it is important (short is best).
- Summarize what is known about your topic, what is not yet known but that we need to know.
- Include sufficient and appropriate citations.
- Then, focus in on your species or system or analytical approach. Explain how and why it will help advance understanding of the topic.
- Then end with the specific hypotheses you’ll test.
- This will naturally lead into the methods section.

Next, write the abstract

- Check the requirements of the journal.
- Include all the key details of your study (what, when, where, why).
- Remember that most people who interact with your paper will only ever read the abstract.

Terrestriality across the primate order: A review and analysis of ground use in primates

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Abstract

Terrestriality is relatively rare in the predominantly arboreal primate order. How frequently, and when, terrestriality appears in primate evolution, and the factors that influence this behavior, are not well understood. To investigate this, we compiled data describing terrestriality in 515 extant nonhuman primate taxa. We describe the geographic and phylogenetic distribution of terrestriality, including an ancestral state reconstruction estimating the frequency and timing of evolutionary transitions to terrestriality. We review hypotheses concerning the evolution of primate terrestriality and test these using data we collected pertaining to characteristics including body mass and diet, and ecological factors including forest structure, food availability, weather, and predation pressure. Using Bayesian analyses, we find body mass and normalized difference vegetation index are the most reliable predictors of terrestriality. When considering subsets of taxa, we find ecological factors such as forest height and rainfall, and not body mass, are the most reliable predictors of terrestriality for platyrrhines and lemurs.

KEYWORDS

ancestral reconstruction, evolution of terrestriality, ground use, primate arboreality, primate ecology, primate terrestriality







Future coexistence with great apes will require major changes to policy and practice

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 Check for updates

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The great apes—bonobos, chimpanzees, gorillas and orangutans—are critically threatened by human activities. We have destroyed their habitats, hunted them and transmitted fatal diseases to them. Yet we also conduct research on them, try to protect them and live alongside them. They are endangered, and time is running out. Here we outline what must be done to ensure that future generations continue to share this planet with great apes. We urge dialogue with those who live with great apes and interact with them often. We advocate conservation plans that acknowledge the realities of climate change, economic drivers and population growth. We encourage researchers to use technology to minimize risks to great apes. Our proposals will require substantial investment, and we identify ways to generate these funds. We conclude with a discussion of how field researchers might alter their work to protect our closest living relatives more effectively.



Biotic and abiotic drivers of dispersion dynamics in a large-bodied tropical vertebrate, the Western Bornean orangutan

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Abstract

Understanding of animal responses to dynamic resource landscapes is based largely on research on temperate species with small body sizes and fast life histories. We studied a large, tropical mammal with an extremely slow life history, the Western Bornean orangutan (*Pongo pygmaeus wurmbii*), across a heterogeneous natural landscape encompassing seven distinct forest types. Our goals were to characterize fluctuations in abundance, test hypotheses regarding the relationship between dispersion dynamics and resource availability, and evaluate how movement patterns are influenced by abiotic conditions. We surveyed abundance in Gunung Palung National Park, West Kalimantan, Indonesia, for 99 consecutive months and simultaneously recorded weather data and assessed fruit availability. We developed a Bayesian hierarchical distance sampling model to estimate population dispersion and assess the roles of fruit availability, rainfall, and temperature in driving movement patterns across this heterogeneous landscape. Orangutan abundance varied dramatically over space and time. Each forest type was important in sustaining more than 40% of the total orangutans on site during at least one month, as animals moved to track asynchronies in fruiting phenology. We conclude that landscape-level movements buffer orangutans against fruit scarcity, peat swamps are crucial fallback habitats, and orangutans' use of high elevation forests is strongly dependent on abiotic conditions. Our results show that orangutans can periodically occupy putative-sink habitats and be virtually absent for extended periods from habitats that are vitally important in sustaining their population, highlighting the need for long-term studies and potential risks in interpreting occurrence or abundance measures as indicators of habitat importance.

Keywords Bayesian hierarchical distance sampling · Habitat shifts · Occupancy · Population dispersion · Tropical ecology

Finally, write the title

- Informative and clear is preferable to cute or ambiguous.
- Make as short as you can while conveying the central message clearly.
- Think about how people will search for information, how they will find your paper.
- Often journals will place strict character limits on title length. This can make writing the title hard!
- Write down multiple alternatives, get feedback from advisors, mentors, colleagues, co-authors.
- Usually, you will be allowed 4-6 “keywords”. Select these with care; do not duplicate words in the title.

Then, get feedback and revise

- Share your work with trusted colleagues, collaborators, mentors, and friends.
- Send it to the people you think are likely to be most critical of your work.
- Don't take criticism personally. If someone has taken the time to give extensive, critical feedback, it is because they are invested in you and your research. It is a sign they care and that your work is important.
- Revise in response to input. Sometimes comments will be contradictory. Use your judgement.

Then submit your work, and move on

- The review process can take a long time.
- Once your paper is submitted, try to forget about it for a while. Move on to something else.

Scientific writing: choosing the right words*

- This first draft is the hardest part (usually). Don't be a perfectionist - just getting text down is really important.
- Write clearly and simply: nature is complicated, our goal is to simplify it. Make it easy on your readers!
- Avoid highly technical terms when possible, when not possible define them clearly at first usage.
- The best scientists and writers make even the most complicated material easy to understand. Seek to emulate this approach.

*some of these points come from Bill Laurence's presentation on *How to be prolific*

Scientific writing: choosing the right words

- Avoid long paragraphs.
- Use subheadings.
- Start each paragraph with a good topic sentence.
- Write in first person (I, we), with active voice, and do not offer too much qualification.
 - not: “These results suggest that hunting is likely an important driver of orangutan population declines in Sumatra and Borneo.”
 - rather: “Our results indicate that people are killing orangutans at unsustainable rates across their range .”

Scientific writing: choosing the right words

- Results can be hard to follow. So after each paragraph or two, insert a summary sentence that encapsulates the main results of the preceding text.
- Don't waste a sentence pointing out a figure or table
 - not: “Factors affecting orangutan densities are shown in Figure 4”
 - rather: “Higher values for expected orangutan abundance, λ_{tj} , were generally associated with larger values for fruit abundance, and at higher elevations with lower rainfall and higher minimum temperatures (Fig. 4).”

Scientific writing: choosing the right words

- Scientific writing is hard. But like any skill, we can improve with practice.
- The more you write, and the more often you write, the better you will get at it.
- Mastering science writing can take a lifetime.

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