



THE SCHOOL  
FOR FIELD STUDIES

# Wildlife and Conservation Biology

## SFS 3701

**Syllabus**  
**4 credits**

The School for Field Studies (SFS)  
Center for Rainforest Studies  
Yungaburra, Queensland, Australia

This syllabus may develop or change over time based on local conditions, learning opportunities, and faculty expertise. Course content may vary from semester to semester.

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## **COURSE CONTENT SUBJECT TO CHANGE**

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***Please note that this is a copy of a recent syllabus. A final syllabus will be provided to students on the first day of academic programming.***

SFS programs are different from other travel or study abroad programs. Each iteration of a program is unique and often cannot be implemented exactly as planned for a variety of reasons. There are factors which, although monitored closely, are beyond our control. For example:

- Changes in access to or expiration or change in terms of permits to the highly regulated and sensitive environments in which we work;
- Changes in social/political conditions or tenuous weather situations/natural disasters may require changes to sites or plans, often with little notice;
- Some aspects of programs depend on the current faculty team as well as the goodwill and generosity of individuals, communities, and institutions which lend support.

Please be advised that these or other variables may require changes before or during the program. Part of the SFS experience is adapting to changing conditions and overcoming the obstacles that they may present. In other words, this is a field program, and the field can change.

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## Course Overview

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This component of the program focuses on identifying threats to wildlife populations, how to obtain data on the impact of these threats on wildlife populations and how to select and apply appropriate conservation methods to mitigate these threats. We will look at these aspects in general and then demonstrate them in case studies of species in the Wet Tropics. To formulate a background understanding of habitats of the Wet Tropic's wildlife, we will explore the origin of the main landscape formations of this part of Australia by looking at geological and biogeographical factors that shaped the landscape and its biota. You will be introduced to Australia's fauna and the unique species that inhabit the diverse habitats of the Wet Tropics. We then will deal with some basic ecological concepts of biodiversity and why so many species can co-exist in one place. This will also involve learning skills to obtain data on various parameters of wildlife populations to assess the impact of habitat loss, fragmentation, introduced species and climate change on them. Field trips and fieldwork in various parts of the Atherton Tablelands will help you in learning these skills.

Using the obtained data on wildlife populations we will explore various conservation techniques to mitigate these threats to the flora and fauna of the Wet Tropics, how to identify partners and resources for conservation work, how to triage conservation needs, and how to best advocate conservation. We will consider the role of corridors or landscape linkages, particularly along riparian areas, and ways in which restoration and landscape rehabilitation can overcome negative effects of human driven landscape modification and climate change on these ecosystems. We will consider options on how to efficiently control pest animals and their impacts on native flora and fauna.

The course is a mixture of class lectures, field lectures, field laboratory courses, workshops, field trips, and readings to complement the material presented in the lectures. A major emphasis is on field skills, the collection, management and analyses of data, and skills of writing a scientific paper. A wide range of material will be provided and should be used to study the class topics and to acquire the desired skills. Be aware that all material covered in class, lectures, field lectures, field trips and readings is examinable.

## Center Research Direction

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The Centre for Rainforest Studies' research plan addresses the question: *How can the future of the Wet Tropics in a changing world be ensured?* Staff and students of SFS-CRS investigate this topic by engaging in research under three core components:

1. Understanding ecological and social systems
2. Conflict, vulnerability, and change
3. Effective response to change

Through our research, we aim to assist a range of stakeholders and research partners. These include local landholders; non-government conservation organizations conducting rainforest restoration or having a special interest in flora and fauna; several levels of government, particularly local and state government; regional research organizations, including universities and the Commonwealth Scientific and Industrial Research Organization.

We aim to improve stability, sustainability, environmental awareness, and concern for natural resources in the Wet Tropics, on the Atherton Tablelands. Our goal is to strengthen research, technical and

practical collaboration between SFS-CRS and other research organizations, governmental agencies, and non-governmental organizations to carry out this agenda.

## Learning Objectives

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Following this course, students should understand:

1. the factors that influenced the origin of the Wet Tropics' landscapes and ecosystems
2. the ecology of rainforest, freshwater, and marine ecosystems of the Wet Tropics
3. the fauna of the Wet Tropics
4. the threats to wildlife populations of various ecosystems in the Wet Tropics
5. the issues associated with conserving wildlife populations and managing rainforest, freshwater, and marine ecosystems in the Wet Tropics

## Assessment

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Assessment Item	Value (%)
Bird Quiz	20
Research Project Development Assignment	20
FEX Report	30
Final Exam	25
Participation	5
<b>TOTAL</b>	<b>100</b>

### Bird Quiz (20%)

The purpose of this quiz is to develop your skills in identifying birds of our rainforest by sound and visual cues. As the Atherton Tablelands is home to a diverse fauna the familiarization with the most common species will help to better understand the roles these animals play in the ecosystems of this region. We will conduct bird walks to practice techniques to quickly identify birds by sight and/or sound. The quiz will give you some familiarity with the Wet Tropics fauna.

### Research Project Development Assignment (20%)

In this group assignment you will deliver a comprehensive preparation of a research project. Based on a given topic you will search scientific literature to develop an explicit and realistic research question and hypothesis. This will guide you in developing an appropriate methodological approach including the use of ecological field and laboratory techniques, the design of data sheets and the selection of statistical tools. You will present your ideas on the implementation of your research project to the class using various demonstration means.

### FEX Report (30%)

During our Field Exercise we will assess the diversity of mammals in old growth rainforests and secondary forests at CRS using non-invasive methods. We will apply some of the wildlife field techniques which you became familiar with. You will design data sheets, collect data and develop your own research question. Workshops on scientific writing and statistical data analysis will prepare you to write your mock scientific paper.

### Final Exam (25%)

During the final exam you will be tested on material presented in lectures, field lectures, and excursions. Answering questions will require critical and analytical thinking across the various teaching units.

### Participation (5%)

During the course, students will be graded by faculty based on their overall participation in fieldwork and during lectures or discussion. Students may also have their peers involved in giving feedback on how each of them participated during group work.

### Grading Scheme

A	95.00 - 100.00%	B+	86.00 - 89.99%	C+	76.00 - 79.99%	D	60.00 - 69.99%
A-	90.00 - 94.99%	B	83.00 - 85.99%	C	73.00 - 75.99%	F	0.00 - 59.99%
		B-	80.00 - 82.99%	C-	70.00 - 72.99%		

### General Reminders

**Readings** - You are expected to have read all the assigned articles prior to each class. Readings might be updated or changed during the semester.

**Honor Code/Plagiarism** – SFS places high expectations on their students and we hold students accountable for their behaviors. SFS students are held to the honor code below. SFS has a zero-tolerance policy towards student cheating, plagiarism, data falsification, and any other form of dishonest academic and/or research practice or behavior. Using the ideas or material of others without giving due credit is cheating and will not be tolerated. Any SFS student found to have engaged in or facilitated academic and/or research dishonesty will receive no credit (0%) for that activity.

*“SFS does not tolerate cheating or plagiarism in any form. While participating in an SFS program, students are expected to refrain from cheating, plagiarism and any other behavior which would result in a student receiving credit for work which they did not accomplish on their own. Students are expected to report any instance of cheating or plagiarism by others.”*

**Deadlines** – Assessments items are instated to promote equity among students and to allow faculty ample time to review and return assignments before others are due. As such, deadlines are firm, and extensions will only be considered under extenuating circumstances. If you believe that you have been prevented from completing your work on time for reasons beyond your control (e.g., illness), make sure that you discuss this with the course coordinators **as soon as possible**, and certainly before the assignments are due. Assignments submitted after the due date and without extension will be penalised at **10% per day late**.

**Faculty availability** – Faculty will ordinarily keep regular office hours. Extended meetings should be pre-arranged, and any meeting outside office hours must be arranged at least 24 hours in advance.

**Content Statement** – Every student comes to SFS with unique life experiences, which contribute to the way various information is processed. Some of the content in this course may be intellectually or emotionally challenging but has been intentionally selected to achieve certain learning goals and/or showcase the complexity of many modern issues. If you anticipate a challenge engaging with a certain topic or find that you are struggling with certain discussions, we encourage you to talk about it with faculty, friends, family, the HWM, or access available mental health resources.

**Participation** – Since we offer a program that is often more intensive than you might be used to at your home institution, missing even one lecture can have a proportionally greater effect on your final grade simply because there is little room to make up for lost time. Participation in all components of the course is mandatory, it is important that you are prompt for all activities, bring the necessary equipment for field exercises and class activities, and simply get involved.

## Course Content

**Type - L:** Lectures, **GL:** Guest Lecture, **FL:** Field Lecture, **FEX:** Field Exercise, **REV:** Review, **W:** Workshop  
Not all readings will be required.

No	Topics covered	Hours	Type	Readings
1	<b>Wildlife and Conservation Biology: Course Overview</b> This lecture introduces to you the course content, course components and resources. This lecture will get you into the swing of discovering Australia’s unique wildlife, the threats to it and attempts to conserve it.	1.0	L	Geyle et al. (2018) Ward and Williams (2021) Ritchie (2022)
2	<b>Introduction to Assignments</b> Further information, resources, and rubrics for course assignments.	1.0	L	
3	<b>Geological processes that shaped the landscapes and fauna of the Tablelands and the Great Barrier Reef</b> Let’s dive into the past and see how geological events created the various landscape elements we are seeing today along the coast of Far North Queensland, and how they have affected the fauna of this area.	1.0	L	Whitehead et al. (2007) Johnson and Prideaux (2004) Johnson, D. (2004) Stephensons, P.J. (1989) Winter (1997) Black et al. (2012)
4	<b>Fauna of rainforests and freshwater ecosystems of the Wet Tropics</b> Faunal elements of the rainforest and water streams. Keep your eyes open and always explore the fauna. Contact your faculty for assistance in identifying your observations.	1.0	L	Ramsey, D. (2005) <b>Further articles such as:</b> Pearson et al. (2015) Pepper et al. (2018) Pettit et al. (2016) Heise-Pavlov et al. (2011) Freeman and Freeman (2009) Heise (2017)
5	<b>Biodiversity and Life in the Jungle</b> We will explore the different meanings/types of biodiversity and some ecological terms related to biodiversity. We will analyze the	1.0	L	Attwill, P. and Wilson, B. (2006) Alamgir et al. (2018) Graham et al. (2010) Kiley et al. (2019)

	different roles animals play in an ecosystem and mechanisms that ensure that species can all co-exist.			<b>Further articles such as:</b> Kitching et al. (2007) Sekercioglu (2006) Gordon et al. (2010) Tingley et al. (2014) Zavaleta et al. (2009)
6	<b>Past and current landscapes of the Atherton Tablelands and impact of humans on the natural assets of the Atherton Tablelands</b> A tour of the Tablelands will show you the main land formations of this area. We will see different soil types and discuss how their distribution has affected the rainforest distribution and land uses. We will analyze human impact on the landscape and wildlife.	7.0	FL	Stephensons, P.J. (1989) Haberle, S. (2005) Haberle et al. (2006)
7	<b>Fauna of marine ecosystems of the Great Barrier Reef</b> In this guest lecture you will get familiarized with the many different ecosystems of the Great Barrier Reef and the main creatures that inhabit them.	1.0	L	Ceccarelli et al. (2014) Cheal et al. (2012) Jones et al. (2018) Hof et al. (2017) Emslie et al. (2017) Kingsford et al. (2012) Sobtzick et al. (2017)
8	<b>Excursion to Cairns Aquarium</b> Explore the diversity of aquatic fauna and flora	1.5	FEX	
9	<b>The outback of Australia</b> In this component you will get a taste of the Australian outback with its typical landscapes and vegetation.	2.5	FEX	
10	<b>Consequences of habitat loss and fragmentation for wildlife populations</b> Habitat fragmentation has profound impacts on terrestrial and freshwater ecological communities – we will consider some theoretical aspects of these impacts and consider examples from our rainforest fauna.	0.5	L	Latch, P. (2008) Laurance (2008) Schwartz et al. (2020) Fahrig, L. (2017) Wintle, et al. (2019) Heise-Pavlov (2016) Villard and Metzger (2014) <b>Further articles such as:</b> Couvét (2002) Harding and Gomez (2006) Pettit et al. (2016) Goosem and Turton (2000) Moore et al. (2022)
11	<b>Introduced species</b> We learn about the impact of non-native plant and animal species on the Australian ecosystems and the tropical rainforests and freshwater ecosystems of the Atherton Tablelands in particular.	0.75	L	Harrison and Congdon (2002) Attiwill and Wilson (2006) Woinarski et al. (2015) Eldridge and Koen (2008) Petersen et al. (2006) Dickman et al. (2019)

				Doody et al. (2021) <b>Further articles such as:</b> Brown and Sax (2004) Clavero (2014) Shea and Chesson (2002) Heise-Pavlov and Longway (2011)
12	<b>Impact of Climate change on Australian Wet Tropics animal populations</b> You will hear how changing climatic conditions in Australia will affect our wildlife populations, particularly in the Wet Tropics.	0.5	L	Williams et al. (2003) Wagner et al. (2020) Meade et al. (2018) Mella et al. (2019)
13	<b>Wildlife Field Techniques 1: Trapping</b> You will be introduced to various methods to collect data on wildlife in the field, and the characteristics of these methods in relation to animal welfare.	2.0	FEX	Henderson (2003) Cromsigt et al. (2009) Wearn and Glover-Kapfer (2019) Fuller et al. (2015) <b>Further articles such as:</b> Cilulco et al. (2013) Lomolino et al. (2015)
14	<b>Wildlife Field Techniques 2: Species ID</b> You will be introduced to species ID methods in the field and various ID apps	3.0	FEX	
15	<b>Wildlife Field Techniques 3: Animal observations</b> You will be given a brief introduction to the study and description of animal behavior and will apply some of these techniques.	1.0	FEX	Smith and Pinter-Wollman (2021)
16	<b>Wildlife Field Techniques 4: Nocturnal fauna methods</b> We will go out to explore the nocturnal fauna of a rainforest habitat. You will become familiar with the technique of spotlighting	2.5	FEX	Lindenmayer et al. 2001
17	<b>Introduction to spatial tools in wildlife conservation (GPS/Topographic maps/GIS):</b> This workshop consists of two parts: Part A: In this part we will learn how to extract spatial information from topographic maps and how to collect spatial data in the field. Part B: In this part we will practice how to manage spatial data that we collected in the field, and we will familiarize ourselves with the various parts of ARC-GIS software.	5.0	W	Kozak et al. (2008) Heise-Pavlov (2016) <b>Further articles such as:</b> O’Kane et al. (2014)
18	<b>Field Exercise</b> You will develop, prepare, implement, and report on a small research project. You will be introduced to rules of scientific writing and methods for statistical data analysis (these are parts of the DR syllabus) during the FEX. You	7.5	FEX	



	will develop your own specific research question and write a mock scientific paper to address your question. Contact your faculties for assistance in selecting your research question, and with questions about scientific writing and statistical data analysis.			
19	<p><b>Mitigating habitat Loss and fragmentation</b></p> <p>During this field lecture and your community service, you will be introduced to various ways to restore lost habitat. You'll hear about connectivity projects driven by governmental and NGO entities in the Wet Tropics.</p>	5.0	FL	<p>Soule, M.E. et al. (2004)  Elgar et al. (2014)  Florentine (2008)  Lindenmayer, D. (2019)  Pascual-Hortal and Saura (2006)  Cattarino et al. (2016)  <b>Further articles such as:</b>  Jones et al. (2011)  Goosem et al. (2005)  Villard-Metzger (2014)  Zeller et al. (2012) Gibbons et al. (2007) Diaz-Garcia et al. (2020)  Shoo et al. (2016)</p>
20	<p><b>Mitigating impact of introduced species to native wildlife populations</b></p> <p>There are numerous conventional methods to control introduced species and reduce their impact on native Australian wildlife populations, but you will also hear about some modern techniques that genetics and animal behavior research are now providing to wildlife ecologists</p>	1.0	L	<p>Heyword and Norbury (1999)  Gentle and Cother (2014)  Cooke (2012)  Van Bommel and Johnson (2017)  <b>Further articles such as:</b>  Nelson et al. (2011)  Humphrys and Lapidge (2008)  Massei and Cowan 2014</p>
21	<p><b>Mitigating the effects of climate change on Wet Tropics animal populations</b></p> <p>Apart from reducing our greenhouse gas emissions to prevent further global warming, there are several measures we can implement to reduce the impact of global warming on wildlife populations, particularly in the high elevated areas of the Atherton Tablelands which contain many endemic species that depend on cooler climates</p>	1.0	L	<p>Weber et al. (2021)  Seymour, F. (2020)  Reside et al. (2014)  Keppel et al. (2015)  Reside et al. (2017)</p>
22	<p><b>Assessment of animal extinction risk</b></p> <p>For a realistic assessment of the impact of threats to wildlife populations we need an understanding of population parameters such as birth rates, fecundity, growth rates, reproductive parameters, mortality rates and how they affect population resilience.</p>	1.0	L	<p>Akçakaya and Sjögren-Gulve (2000)  Chaudhary &amp; Oli (2020)  Brodie, et al. (2018)  Franklin, et al. (2021)  Godwin, et al. (2020)  <b>Further articles such as:</b>  Fragan and Holmes (2006)</p>

23	<b>Assessing effects of conservation actions</b> How can we assess whether our conservation work was successful? Shortage of resources for conservation demands effective methods that work, but how to assess their outcomes?	1.0	L	Mahlum et al. (2018) Schori et al. (2020) Lindenmayer et al. (2013)
24	<b>Research Project Development Assignment</b> You will be introduced to this group assignment, will be given a research topic and instructions on how to present the results of your project design.	2.5	L	
25	<b>Exam Review</b> Consult your faculty during exam preparation.	1.0	REV	
<b>Total</b>		<b>52</b>		

## Reading List

Not all readings will be required.

1. Akçakaya H.R. and P. Sjögren-Gulve. 2000. Population viability analysis in conservation planning: an overview. *Ecological Bulletins* 48:9-21.
2. Alamgir et al. (2018): Spatial congruence and divergence between ecosystem services and biodiversity in a tropical forested landscape.- *Ecological Indicators* 93 (2018) 173–182
3. Attiwill, P. and Wilson, B. (2006): *Ecology – an Australian Perspective*.- pages 550 – 554, CRS Library ECO086
4. Black et al. (2012) The rise of Australian marsupials: a synopsis of biostratigraphic, phylogenetic, palaeoecologic and palaeobiogeographic understanding. In *Earth and life* (pp. 983-1078). Springer, Dordrecht.
5. Brodie, J. F., Redford, K. H., & Doak, D. F. (2018). Ecological function analysis: incorporating species roles into conservation. *Trends in Ecology & Evolution*, 33(11), 840-850.
6. Brown and Sax (2004)
7. Cattarino et al. (2016) Spatial scale and movement behaviour traits control the impacts of habitat fragmentation on individual fitness.- *Journal of Animal Ecology*, 85, 168–177
8. Ceccarelli et al. (2014)
9. Chaudhary, V., & Oli, M. K. (2020). A critical appraisal of population viability analysis. *Conservation Biology*, 34(1), 26-40.
10. Cheal et al. (2012)
11. Cilulco et al. (2013): infrared thermal imaging
12. Clavero (2014)
13. Cooke (2012): Rabbits: manageable environmental pests or participants in new Australian ecosystems? - *Wildlife Research*, 39, 279–289
14. Couvet (2002)
15. Cromsigt et al. (2009): Monitoring large herbivore diversity at different scales: comparing direct and indirect methods.- *Biodivers Conserv* 18:1219–1231
16. Diaz-Garcia et al. (2020)
17. Dickman et al. (2019): Assessing Risks to Wildlife from Free-Roaming Hybrid Cats: The Proposed Introduction of Pet Savannah Cats to Australia as a Case Study.- *Animals* 9, 795-787

18. Doody et al. (2021): Impacts of invasive cane toads on an Endangered marsupial predator and its prey.- *Endangered Species Research* 46: 269–277
19. Eldridge and Koen (2008): Formation of nutrient-poor soil patches in a semi-arid woodland by the European rabbit (*Oryctolagus cuniculus* L.).- *Austral Ecology* (2008) 33, 88–98
20. Elgar et al. (2014): Overcoming barriers to seedling regeneration during forest restoration on tropical pastureland and the potential value of woody weeds.- *Frontiers in Plant Science* 5: 1-10
21. Emslie et al. (2017)
22. Fahrig, L. (2017): Ecological Responses to Habitat Fragmentation Per Se.- *Annu. Rev. Ecol. Evol. Syst.* 48:1–23
23. Florentine (2008): Species persistence and natural recruitment after 14 years in a restoration planting on ex-rainforest land in north-east Queensland. *Ecol. Managem and Restor* 9: 217-221
24. Fragan and Holmes (2006)
25. Franklin, A. D., Lacy, R. C., Bauman, K. L., Traylor-Holzer, K., & Powell, D. M. (2021). Incorporating drivers of reproductive success improves population viability analysis. *Animal Conservation*, 24(3), 386-400.
26. Freeman and Freeman (2009)
27. Fuller et al. (2015): Connecting soundscape to landscape: Which acoustic index best describes landscape configuration?.- *Ecological Indicators* 58 (2015) 207–215
28. Gentle and Cother (2014): Biodegradation of 1080: Testing soils in south-eastern Australia for sodium fluoroacetate-degrading micro-organisms.- *Ecolog Managem and Restoration* 15: 52-57
29. Geyle et al. (2018) Quantifying extinction risk and forecasting the number of impending Australian bird and mammal extinctions. *Pacific Conservation Biology* 24:157-167.
30. Gibbons et al. (2007)
31. Godwin, J. L., Lumley, A. J., Michalczyk, Ł., Martin, O. Y., & Gage, M. J. (2020). Mating patterns influence vulnerability to the extinction vortex. *Global Change Biology*, 26(8), 4226-4239.
32. Goosem and Turton (2000)
33. Goosem et al. (2005)
34. Gordon et al. (2010)
35. Graham et al. (2010): Dynamic refugia and species persistence: tracking spatial shifts in habitat through time.- *Ecography* 33: 1062-1069,
36. Haberle et al. (2006): The impact of European occupation on terrestrial and aquatic ecosystem dynamics in an Australian tropical rain forest.- *Journal of Ecology* 94, 987–1002
37. Haberle, S. (2005): A 23,000-yr pollen record from Lake Euramoo, Wet Tropics of NE Queensland, Australia.- *Quaternary Research* 64 (2005) 343 – 356;
38. Harding and Gomez (2006)
39. Harrison, D.A. and Congdon, B.C. (2002): Wet Tropics Vertebrate Pest Risk Assessment Scheme.- CRC, Cairns, chapters 1.2.1; 2.1 and 2.2
40. Heise (2017)
41. Heise-Pavlov and Longway (2011)
42. Heise-Pavlov et al. (2011)

43. Heise-Pavlov, S. and Gillanders, A. (2016) Exploring the use of a fragmented landscape by a large arboreal marsupial using incidental sighting records from community members.- *Pacific Conservation Biology* 22: 386-398
44. Henderson (2003): *Practical Methods in Ecology*; CRS Library ECO075 (also see ECO064);
45. Heyword and Norbury (1999): Secondary poisoning of ferrets and cats after 1080 rabbit poisoning.- *Wildlife Research* 26, 75.80
46. Hof et al. (2017)
47. Johnson and Prideaux (2004) Extinctions of herbivorous mammals in the late Pleistocene of Australia in relation to their feeding ecology: No evidence for environmental change as cause of extinction. *Austral Ecology* 29, 553–557
48. Johnson, D. (2004) *The Geology of Australia*.- Cambridge University Press,276pp. (Faculty office)
49. Jones et al. (2011)
50. Jones et al. (2018)
51. Keppel et al.;. (2015): The capacity of refugia for conservation planning under climate change. *Frontiers in Ecology and the Environment*. 13 (2): 106-112.
52. Kiley et al. (2019): Modest levels of interpretability of the term 'biodiversity', mediated by educational level, among the Australian public.- *Pacific Conservation Biology*, , 25, 208–210
53. Kingsford et al. (2012)
54. Kitching et al. (2007)
55. Kozak et al. (2008): Integrating GIS-based environmental data into evolutionary biology.- *Trends in Ecology and Evolution* Vol.23 No.3: 141-148
56. Latch, P. (2008): *Recovery Plan for Mabi Forest- Mabi Forest Recovery Team, Queensland Government, EPA-Pdf file*
57. Laurance (2008): Theory meets reality: How habitat fragmentation research has transcended island biogeographic theory.-*Biological Conservation*
58. Lindenmayer et al. (2013): Counting the books while the library burns: why conservation monitoring programs need a plan for action. *Frontiers in Ecology and the Environment*, 11, 549-555
59. Lindenmayer et al. 2001: How effective is spotlighting for detecting the greater glider (*Petauroides volans*)?.- *Wildlife Research*, 28, 105–109
60. Lindenmayer, D. (2019): Small patches make critical contributions to biodiversity conservation.- *pnas*.1813051115
61. Lomolino et al. (2015) - soundscape
62. Mahlum et al. (2018): Does restoration work? It depends on how we measure success.- *Restoration Ecology* 26, 952–963
63. Meade et al. (2018) Substantial reduction in thermo-suitable microhabitat for a rainforest marsupial under climate change. *Biology letters*, 14(12), 20180189.
64. Mella et al. (2019) Needing a drink: rainfall and temperature drive the use of free water by a threatened arboreal folivore. *PLoS One*, 14(5), e0216964.
65. Moomaw et al. (2021): WORLD SCIENTISTS' WARNINGS INTO ACTION, LOCAL TO GLOBAL
66. Moore et al. (2022)
67. Nelson et al. (2011); Humphrys and Lapidge (2008); Massei and Cowan 2014

68. O’Kane et al. (2014)
69. Pascual-Hortal and Saura (2006): Comparison and development of new graph-based landscape connectivity indices: towards the prioritization of habitat patches and corridors for conservation.- *Landscape Ecology* 21:959–967
70. Pearson et al. (2015)
71. Pepper et al. (2018)
72. Petersen et al. (2006): On the numerous concepts in invasion biology.- *Biological Invasions* 8:1409–1424
73. Pettit et al. (2016)
74. Ramsey, D. (2005): Rainforests of tropical Australia. Ecosystem Manual series; CRS Library TRF072
75. Reside et al. (2014): Characteristics of climate change refugia for Australian biodiversity.- *Austral Ecology* 39, 887–897
76. Reside et al. (2017): Adapting systematic conservation planning for climate change.- *Biodivers Conserv*
77. Ritchie (2022) Australia’s biodiversity crisis and opportunity. *Science* VOL 375 ISSUE 6578
78. Schori et al. (2020): Designing monitoring protocols to measure population trends of threatened insects: A case study of the cryptic, flightless grasshopper *Brachaspis robustus*.- *PlusOne* Sept 2020
79. Schwartz et al. (2020): The value of monitoring wildlife roadkill.- *European Journal of Wildlife Research* 66: 18
80. Sekercioglu (2006)
81. Seymour, F. (2020): Seeing the Forests as well as the (Trillion) Trees in Corporate Climate Strategies.- *One Earth* 2.
82. Shea and Chesson (2002)
83. Shoo et al. (2016)
84. Smith and Pinter-Wollman (2021): Observing the unwatchable: Integrating automated sensing, naturalistic observations and animal social network analysis in the age of big data.- *Anim Ecol.* 90:62–75.
85. Sobtzick et al. (2017)
86. Soule, M.E. et al. (2004): The role of connectivity in Australian conservation.- *Pacific Conservation Biology* 10: 266-279. CRS Library JPCB104
87. Stephenson, P.J. (1989) *Rocks and Landscapes of the Cairns District*.- Qld Dept. of Mines (CRS Library ECO081)
88. Tingley et al. (2014)
89. Van Bommel and Johnson (2017): Olfactory communication to protect livestock: dingo response to urine marks of livestock guardian dogs.- *Australian Mammalogy*, 39, 219–226
90. Villard, M. A. and Metzger, J. P. (2014) Beyond the fragmentation debate: a conceptual model to predict when habitat configuration really matters. *Journal of Applied Ecology*, 51(2), 309-318.
91. Villard-Metzger (2014)
92. Wagner et al. (2020) Climate change drives habitat contraction of a nocturnal arboreal marsupial at its physiological limits. *Ecosphere*, 11(10), e03262.
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