

Australian

Volume 4

Nature Study Guide



*A weekly observation of
Australian Wild life*

*Spring/
Summer*

Australian Nature Study

Guidebook

A Weekly observation
of Australian wild life.

Spring and Summer

Volume Four

Marie Viljoen

AUSTRALIAN NATURE STUDY *GUIDEBOOK*

Spring and Summer
Volume Four

First Published by Marie Viljoen 2018

First Edition 2018

Copyright 2018 Marie Viljoen

All rights reserved.

www.naturestudyaustralia.com.au

Cover & Notebook Pages by Jo

Edited by Elizabeth

PHOTOCOPYING AND DISTRIBUTION POLICY

©Copyright 2018 by Marie Viljoen. All rights reserved. Permission is granted to the purchaser of this eBook to print or copy for their family's use only. **This material is not to be duplicated or shared in any form outside of your own home.** Marie Viljoen.

TABLE OF CONTENTS

<i>Acknowledgements</i>.....	7
<i>Welcome</i>	8
Starting Out.....	10
<i>Taking the Plunge</i>	17
<i>Spring</i>	17
Weeds	17
Spring Tree Study	24
Caterpillars	30
Butterflies	37
Dragonfly.....	42
<i>Summer</i>	46
Dangerous Spiders	46
Dangerous Snakes	51
Cicadas	59
Bats	64
Parrots	70
<i>Additional Activities</i>	75
<i>Resource List</i>	77

Get in Touch!

It is my hope this guide will encouraged you to marvel at God's creation and refresh your spirit as you explore and enjoy His gift to you.

[Nature Science for Aussie families](#) is a F.B. Group where outdoor mamas share their adventures, explorations and activities to motivate, encourage and support one another. We'd love to have you [come along side us](#) and share in our joy of the outdoors.

[Become a part of our email community](#) for additional support and free resources that'll enrich your nature study encounters by subscribing to our monthly Nature Study Journal [here](#).

Pop in and visit me at:

[Instagram: nature study australia](#)

[Facebook: Nature Study Australia](#)

[Nature Study Australia Forum](#)

Introducing the Backyard Edition of the Australian Nature Study Guide 2019



Acknowledgements

Thank you,
Elizabeth,
for walking alongside me and
showing me the beauty of God's creation.

Thank you,
Johanna,
for being my Personal Research Assistant.
Your support and encouragement has been invaluable to me.

With all my heart,
I thank my family,
for your patience and support.

And above all,
I thank My Heavenly Father,
for the desires planted in my heart and
for guiding my steps.

A warm thank you
to the photographers
who kindly contributed their photographs
for this guide.

WELCOME!

A while ago, I was introduced to Charlotte Mason's educational philosophies and the study of nature. I was inspired by a friend and set out to find resources that would guide me through this new adventure, however I became disheartened rather quickly as I discovered there were few Australian materials to be found. I bought a few American based nature studies and realised it wasn't going to work for those of us in Australia. Our seasons were the opposite and our wildlife quite unique.

The ideal nature study guide for me would:

- Guide me through the seasons.
- Integrate subjects such as English, science, geography, history and art.
- Contain activities for multiple ages.
- Have the flexibility to grow into a unit study.
- Include note booking pages.
- Include information on a topic.
- Contain a list of helpful resources.
- Be adaptable.

The Australian Nature Study Guidebook: Weekly Observations of Australian Wildlife was born out of this need. I hope you'll be inspired to embark on adventures into the great outdoors, and enjoy making precious memories with your children, while seeking out the gems each season has to offer.

As a Christian, my writing will be flavoured with a Christian worldview and as home educators, we have the liberty to take what we need from a resource and leave what we don't, so you have the freedom to tailor this guide to your unique family and personal beliefs. We all have the same goal in mind: to give our children an exceptional education fashioned to their own capabilities and interests.

The information included in this guide can be used by all home educators regardless of your preferred learning style. It is flexible and easily tailored to your preference whether it be Charlotte Mason, Unit Studies, Unschooling, Project-Based, Classical or Traditional.

*“You, LORD, are the
only God. You
created the heavens,
the highest heavens,
with all their stars,
the earth and all that
is on it, the seas and
all that is in them.
You give life to all of
them, and all the
stars of heaven
worship you.”
Nehemiah 9:6*

STARTING OUT

“There is so much in the world for us all if we only have the eyes to see it.” ~ L.M. Montgomery

Let’s Get Started

This section will provide information on the topic being researched before you head out doors, so that you are armed with the knowledge you need to answer questions when they’re fired at you. It is by no means exhaustive. Instead of reinventing the wheel, I’ll be referring you to helpful resources or links on the weeks theme if you’d like to research it further and dig deeper.

Nature Rambles

A nature ramble can be a five-minute hunt in the backyard or an hour of exploration in the bush. If for some reason you’re not able to wander outside, you can still study nature inside, whether it’s in a reference book, the Daddy Long Legs in the corner or the ants in the sugar bowl.

If a five-minute spontaneous, backyard ramble is what you prefer, then continue doing what’s working for you and glean what you need from this guide. However, if you have a personality like mine, and prefer nature walks a little more structured, this section will help you focus on a topic to observe. Search for a place you can visit regularly and make it your favourite go-to spot for nature walks.

Literature Jaunt

I’ve included a list of children’s books from the library relevant to the theme of the week which will offer enjoyment and ignite excitement in the subject to be explored. Take your books with you on your outings and read them to the children outside. The studies do not rely on these books, so don’t stress if you can’t find a title or if you’re unable to visit the library. After reading a story to your children, ask them to narrate it back to you. Start with the youngest child so the older children are challenged further to recall what was read to them.

Please preview the books first to see if they meet your standards. There are a few books that have a secular worldview. I'd suggest skipping the historical viewpoints to the facts related to the study. Also ensure your children have a firm grounding in the creation of the world by God as then they'll be able to perceive evolution's point of view on historical science.

Poetry Picnic

Reading poetry while enjoying a snack is so refreshing and I guarantee, that if the children aren't keen on poetry, they'll be there for refreshments. Pull out your blanket, and a snack to enjoy while reading the poems included in this section with your children. Due to copywrite laws, I've not included the poems in the guide, but most of them can be found with an internet search. The poems can be used as copy work, either as handwriting practice or as an addition to their nature journal entry. It can also be used for dictation and memory work.

"It is the duty of parents to sustain a child's inner life with ideas as they sustain its body with food."

~ Charlotte Mason

Picture Study

Picture study is a fun way to include art appreciation into your schedule. Children are exposed to wonderful works of art and ideas. The artworks can be found by using the internet in a quick search. Charlotte Mason's method of picture study is for the children to look at the picture intently, and for as long as they need and then answer these few questions:

- Ask them what they saw and expect them to describe it in as much detail as they can. Start with the youngest child so the older children are challenged to include more detail.
- What time of day is it?
- What season do you think it is?
- Is there a story to the picture or is it a scientific sketch?
- Do you like the picture? Why or why not?

Digging Deeper

In this section you'll find activities that will help the children to dig deeper into the nature study should they choose to. There are activities for research, science, crafts, writing, building projects and much more. Allow the children to choose an activity that's most appealing to them unless you'd like to take a unit study approach and work on these assignments over a few weeks. I've included assignments to be enjoyed by a variety of ages. As families, we know it's important to enjoy the outdoors together, and as busy people, we can save time by integrating all ages into one study.

Copy-work and Dictation

Instead of using a poem as copy-work and dictation, you may prefer to use the scripture reference or a hymn I've included for the week. A friend suggested a while ago to me, and I've found it helpful for the younger years, to use dictation as copy-work/handwriting practice for the week. Monday through Thursday we use a hymn or poem as handwriting practice and finish on Friday by using it for dictation. This method has worked marvellously for us, especially if you're using the content for memorization.

A Note on Safety

Australia has more deadly snakes than any other country in the world. It is also home to numerous poisonous spiders and sea creatures. Teaching our children to have a healthy respect for all creatures is wise. A general awareness while out and about will encourage them to be cautious when their curiosity perks up.

Please, never try to pick up a wild animal even if it's injured. There are people who specialise in capturing snakes or taking care of injured wildlife so it's better to contact them to help the creature. Encourage your children to respect all living things. They should not intentionally provoke, tease or mistreat any animal.

Depending on where you live in this vast country, it is possible to experience four seasons in one day. Always be prepared by wearing appropriate clothing and foot wear. Taking along spare clothing or swimming gear is always a great idea. It's wise to carry water with you on your walk with a source to refill as you need it as it can be dangerous to walk on sweltering summer days and I advise

against it; rather walk in the cool of the day or wait for a milder day to enjoy the outdoors. It's tempting to rest under the shade of a gum tree in the summer, but they tend to drop their branches when it's hot. Seek out shade in a safe place.

Your children will always appreciate a snack. Fruit is usually quite refreshing after a busy nature ramble. Don't forget to pack sunscreen, bug spray and hats. Keep it simple by keeping a field bag packed for such expeditions so all you'll need to do is add the snacks and water.

Optional Gear for Nature Exploration

Only take what is necessary for your nature ramble or bush walk. Keep it simple and manageable.

- Nature Journals (One for you too!)
- Writing and/or Art Supplies
- Magnifying Lens
- Bug Container
- Butterfly Net
- Binoculars
- Camera
- Paper bags for collections
- Tape Measure
- Picnic Blanket
- Field Guides
- Compass

A Note on Seasons

Australia has a variety of climate zones due to its size and there is no single seasonal pattern for the whole country.

The temperate zones, including the grasslands and desert, experience a summer/autumn/winter/spring calendar as follows:

- Summer December – February
- Autumn March – May
- Winter June – August
- Spring September – November

While tropical zones have a Wet and Dry pattern. The tropics are divided into three climatic areas:

- Equatorial
- Tropical
- Subtropical

The tropical zones experience six months of wet weather (November-March) typically known as the Big Wet or Monsoon Season. The other six months are known to be the Dry Season (April-October).

Not every topic will coincide with your experience locally. In this case, simply change the topic to that which suite your environment or enjoy learning about the flora and fauna around Australia while experiencing the unique treasures in your own backyard.

Some agree that the European Calendar of four seasons does not match Australia's diversity in climate and environments. Research has been done on the Indigenous Seasonal Calendars so decide if they're more accurate. Investigate the Aboriginal Calendar for your area and observe the seasonal transitions. What do you think?

Notebook Pages

You'll find note booking pages for pre-school, intermediate and advanced children. They have been designed by a friend to be a blessing to you. Copy, Go and Enjoy!

Starting a Nature Journal

Nature journaling is a record of all your observations on nature rambles. It has proved to be an important component to studying nature. The note booking pages can be placed in plastic sleeves and filed as a nature journal reference or you could either make your own nature diaries as shown here for [pre-school](#), [primary](#) or simply buy an inexpensive A5 art book.

Take an interest in [nature journaling](#) yourself. Set the example and you'll inspire your child to do the same. If you're worried about your sketching ability, don't. Your diary is personal to you and its purpose is to record scientific data. Sketching ability is not important, and you'll eventually become comfortable the

more you practise. You may just surprise yourself and your children will enjoy watching what you do.

Basic entries in the journal would be:

- Your name and contact details on the first page should you misplace your diary.
- Date
- Time
- Weather – is it sunny, partly cloudy, cloudy or raining?
- Temperature
- Wind direction and force
- Location
- Sketch and label your subject

Advanced entries include:

- Latin names
- Information on sketched topic
- Timelines
- Diagrams
- Simple Surveys
- Lists of insects, birds, mammals, flowers, orchids, reptiles etc.
- Measurements
- Graphs
- Photographs which can show changes in seasons and environments.
- Maps
- Compass points and direction.
- Pressed flowers/leaves
- Poems
- Quotes
- Scripture
- Hymns

Nature journals have two themes: ongoing Journal which is a record of all you've observed year-round or a seasonal journal. Decide which one you'd prefer.

You Can Do It!

You may be wondering how on earth you're going to fit nature study into your busy schedule? Try integrating subjects and including all the children together as each one works at their own level. Another option would be to place nature study at the core of your curriculum.

If all the time you have is fifteen minutes, start with that. We strive to complete our book work Monday to Thursday and keep Fridays free as our nature study block.

Dragonfly

Let's Get Started

Have you ever tried to catch a dragonfly? They are hard insects to capture aren't they? Do you know why? Dragonflies have the remarkable ability to see everywhere at once.

Their compound eyes wrap nearly all the way around the head and each compound eye has about thirty thousand lenses known as ommatidia which give the insect almost 360 degree vision.

They use eighty percent of their brain to process all this visual information. So when you're creeping up behind the dragonfly in an effort to observe it, it can see you, and when you get too close, it will dart off.

Scientists dream of creating aeronautical machines with the flying abilities of insects like the dragonfly. They are one of the world's fastest flying insects with a speed of 54km/hr. They are agile fliers capable of migrating across oceans and countries.

They're able to fly backwards, forwards, upwards, downwards and left to right. They can move each wing independently giving them the edge as a successful predator with a 90% success rate at chasing and capturing their meal.

As carnivorous predators, dragonflies hunt flies, bees, beetles, moths, butterflies and devour hundreds of mosquitoes a day near ponds, lakes and streams by either:

- Hawking - catching prey in flight,
- Sallying - sit and watch for prey then rapidly dart forward to catch it,
- or gleaning - hover over vegetation to snatch insects perched on plants.

Dragonflies will ensnare an insect and either grip it with the thorny bristles on their legs and eat the meal while patrolling, or perch and chomp on larger insects piece by piece with their sharp mandibles. They even have the audacity to steal the prey of spiders trapped in webs.



Image: Jacob Dedman

Tau Emerald Dragonfly

Hemicordulia tau

Patrolling dragonflies guard their territories jealously, spending most of their time in flight protecting their female friends from intruders so they are able to lay eggs directly in pond water or inject them underneath aquatic plants.

Dragonflies undergo the process of [incomplete metamorphosis](#), unlike butterflies which experience complete metamorphosis. Dragonflies don't go through a pupa stage in the life cycle. The dragonfly life cycle consists of egg, nymph and adult and can last from six months to five years, with most of this time being spent in the nymph or naiad stage.

The egg will hatch and an insect called a naiad will zoom out and lurk in the muddy water waiting for tadpoles, small fish and aquatic insects to wander by. Should some organism be unlucky enough to cross the naiad's path, it'll propel itself forward like a jet, squeezing air from its gills situated at its rear end to capture the unsuspecting creature with its 'mask' and consume it.

Naiads moult and grow larger beneath the water surface until one day it has an urge to surface and moult one last time as a teneral adult. It attaches itself to an emergent plant or tree where it will climb out of its larval suit as an air breathing creature with wings.

Dragonflies are vulnerable to predators like birds during this stage as they need to wait until their exoskeleton dries and hardens before they'll be able to fly efficiently.

Further Exploring

Exploring Creation with Zoology 1 by Fulbright.

- Dragonflies and Damsels, pg.200-202

The Wonderland of Nature by Nuri Mass

- Jewel of the Pond, pg. 68-70

Junior Encyclopedia of Australian Wildlife by Steve Parish

- Winged Wizards, pg.135

Dragonflies by Chris Earley

[The Complete Guide to Dragonflies of Australia by Gunther Theischinger and John Hawing.](#)

Related Internet Links

[Dragonflies and Damselflies: Order Odonatan | Australian Museum](#)

[Dragonflies | Backyard Buddies](#)

[What do Dragonflies Eat?](#)

[The Dragonfly Lifecycle](#)

[How can You Tell the Difference Between a Dragonfly and a Damselfly?](#)

[Dragonfly Identification Key](#)

[Australian Dragonflies Website](#)

[How to Collect Dragonflies](#)

[Dragonflies: Designed to Dart | Creation Ministries](#)

[Dragonflies of Australia | National Geographic](#)

Nature Ramble

Explore a pond, stream, river or lake nearby for dragonflies and damsels. Damsels have thinner, more delicate bodies than dragonflies and they fold their wings together when resting, while dragonflies spread their wings out. Can you spot the difference?

Perhaps you'll notice a dragonfly warming up with rapid whirring movements, or perching dragonflies relying on solar energy to warm their bodies? They reflect heat onto their bodies with their wings on cooler days, while they're able to minimize sun exposure by deflecting heat away from themselves on hot days.

Have you seen patrolling dragonflies? Watch their behaviour. Perhaps you'll see him snatch up a feed or protecting a female nearby laying eggs.

Take the temperature of the pond and compare it with the recording you took in winter. How has the pond changed since you were here last?

Literature Jaunt

[A Dragonfly Dance](#) by Rebecca Johnson

[Are You a Dragonfly by Judy Allen](#) Read Aloud

[Over and Under the Pond by Kate Messner](#)

[One Square Pond](#) by Donald M. Silver

[Dragonflies](#) by R. Hugh Rice

[Eliza and the Dragonfly](#) by Susie Caldwell Rinehart

[Little Busy Bodies](#) by Jeannette Augustus

➤ Fishing, pg. 69

Poetry Picnic

[Fly, Dragonfly! By Joyce Sidman](#)

*"The world will never
starve for want of
wonders."*

G. K. Chesterton

A Scripture

"Our Lord and God, you are worthy to receive glory and honour and power, because you have created all things, and by your will they exist and were created." Revelation 4:11

A Hymn

Thou Art Worthy, Oh Lord by Walter Bond Gilbert [lyrics](#) and [music](#).



Picture Study

Dragonfly preserved in limestone ~

source unknown.

Digging Deeper

Young Students:

- Watch [this](#) dragonfly science video.
- Use the insect notebook page to record your dragonfly observations.
- Take the temperature of the pond and compare it to your recording in winter.
- Try to capture a dragonfly by allowing it to whizz past you then use your net to swipe it from behind like you'd hit a cricket ball with a bat. You've got to be quick. Once you've completed your observations, set him free to join his friends.
- Search tree trunks and branches near the pond for the dried remains of the naiad's exoskeleton known as an exuvia. Add it to your nature table.
- Sift pond water searching for dragonfly nymphs. Use a magnifying glass to study it's claw like mask.
- Discuss the differences you notice around the pond compared to last season.

Older Students:

- Learn how to draw a dragonfly [here](#).
- Study Dragonfly anatomy, life cycles and metamorphosis with the help of [these](#) informative cards.
- Write and illustrate a story from the perspective of a patrolling dragonfly at a pond. What does he see? What creatures does it encounter? How does he hunt?
- Watch the metamorphosis of a dragonfly [here](#).
- Compare the differences between a dragonfly and a damselfly in your field journal.
- Use the insect notebook page to record your dragonfly observations.

Oldest Students:

- Learn how to paint a dragonfly [here](#).
- Explore the picture study fossil of a dragonfly and read '[Did Dragonflies Really Predate Dinosaurs?](#)' by Creation Science.
- Colour in [this](#) picture of a pond ecosystem.
- Investigate the system of [thermoregulation](#) and how dragonflies use it to control their internal body temperature.

- Learn how researchers are studying insects in an effort to create flying machines with the same capabilities in aerodynamics [here](#).
- Record your dragonfly observations on the insect notebook page provided for you.
- Compare the differences between a dragonfly and a damselfly in your field journal.

I'm excited!!
 to introduce the
Backyard Edition
 of the
Australian Nature Study Guide
 Summer/Autumn
 Volume 5
 Term 1 2019



About the Author: Marie Viljoen has been home educating for eleven years. She shares her life with her wonderful husband and lives on the land with four of her five children who enjoy helping dad and raising dogs, calves, ducks and goats. Two of her daughters have graduated and she's the grandparent of two **precious granddaughters** so far.



Marie Viljoen

In those rare moments when there's time to breath and cappuccinos and chocolate are bliss, she loves to read, bush walk and journal. Above all, she adores her Saviour and exploring His exquisite creation brings her joy while sharing the experience with her children. She's so excited for the opportunity to write and share nature discoveries with you.