

# Effects of Shadowing Types on Ground-Measured Visible and Near-Infrared Shadow Reflectances

Brigitte Leblon,<sup>\*</sup> Lisa Gallant,<sup>\*†</sup> and Hardy Granberg<sup>†</sup>

**W**e analyzed the effect on the visible and near-infrared reflectance of shadows cast by a building, a conifer, and a hardwood on three different surfaces (grass, bare soil, and asphalt). Ground-measured radiances were collected with a radiometer measuring the SPOT-NIRV bands and with a spectroradiometer measuring in the SPOT-NIRV and LANDSAT-TM bands as well as giving the whole spectrum from 400 nm to 900 nm. We considered two types of reflectances: the "sunlit reflectance" and the "shadow reflectance," which is calculated, using as irradiance, the radiance of the sunlit reference panel and of the shadowed reference panel, respectively. An analysis of variance showed that visible and near-infrared reflectances of shadows are significantly affected by the surface type and the shadow type. *F*-test values are higher for sunlit reflectances than for shadow reflectances as well as for near-infrared reflectances than for visible reflectances. Reflectances of hardwood shadows are generally higher and more variable than the ones of conifer shadows. Building shadows generally have lower reflectances than hardwood shadows and similar reflectances as conifer shadows. These reflectances were used to calculate two vegetation indices (NDVI and ARVI). They are also affected by the surface and shadow types. Whatever the object casting the shadows, spectra measured in the shadow are typical of the surface type (grass, bare soil, or asphalt). Further studies are needed on multiple shadows and penumbra effects, which are particularly important in the case of forest canopies. © Elsevier Science Inc., 1996

## INTRODUCTION

The total reflectance of a vegetated surface is the sum of the reflectance of sunlit and shadowed vegetation and sunlit and shadowed soil, respectively. Several reflectance models explicitly take into account shadowing effects, such as the geometric models of Cavayas and Teillet (1985), Otterman and Staenz (1985), Li and Strahler (1986), and Hanan et al. (1993), the stochastic model of Rosema et al. (1992), and the stochastic-geometrical model of Jasinski and Eagleson (1989). Shadowing effects are especially important in the case of sparse vegetation canopies (Graetz and Gentle, 1982; Ranson and Daughtry, 1987; Franklin et al., 1991; Hanan et al., 1993), in the case of low sun elevations, for example, in winter or at high latitudes, or in the case of large satellite view angles (Franklin et al., 1991) and explain why the minimum values of reflectance occur at intermediate stand cover rates (Rosema et al., 1992). Since plant canopies are not lambertian surfaces, shadowing due to surface roughness causes a variation in the empirical relationships between reflectance and biological parameters like height and cover rates as well as in the angular effects on plant canopy reflectances, which are dependent on plant growth or development stages. Models to predict the spatial distribution of shadows have been developed by, for example, Kusilva and Pukkala (1987) and Granberg (1988). Shadow effects have also been modeled by means of scale models, by Dickinson (1972) for albedo estimation and by Soffer and Miller (1995), to study reflectance properties of a jack pine forest.

Plant canopies absorb mainly blue and red radiations, by leaf photosynthetic pigments as well as short-wave infrared radiations, by leaf water. Most of the reflected and transmitted radiation is in the near-infrared band (Federer and Tanner, 1966). In this band, shadowing effects in a plant canopy are less important

<sup>\*</sup> Faculty of Forestry, University of New Brunswick, Fredericton, New Brunswick, Canada.

<sup>†</sup> Département de Géographie et Télédétection, Université de Sherbrooke, Sherbrooke, Québec, Canada

Address correspondence to Brigitte Leblon, Fac. of Forestry and Environmental Management, Univ. of New Brunswick, Bag Service No. 44555, Fredericton, NB, E3B 6C2, Canada. E-mail: bleblon@unb.ca

Received 2 September 1995; revised 16 April 1996.

# Shadowing The Ground

**Shasha Hu**



## **Shadowing The Ground:**

Embark on a breathtaking journey through nature and adventure with Explore with is mesmerizing ebook, Witness the Wonders in **Shadowing The Ground** . This immersive experience, available for download in a PDF format ( \*), transports you to the heart of natural marvels and thrilling escapades. Download now and let the adventure begin!

[https://www.staging.gilderlehrman.org/book/virtual-library/Documents/affordable\\_way\\_to\\_use\\_ai\\_for\\_tiktok\\_growth\\_step\\_by\\_step\\_batch78\\_545.pdf](https://www.staging.gilderlehrman.org/book/virtual-library/Documents/affordable_way_to_use_ai_for_tiktok_growth_step_by_step_batch78_545.pdf)

## **Table of Contents Shadowing The Ground**

1. Understanding the eBook Shadowing The Ground
  - The Rise of Digital Reading Shadowing The Ground
  - Advantages of eBooks Over Traditional Books
2. Identifying Shadowing The Ground
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Shadowing The Ground
  - User-Friendly Interface
4. Exploring eBook Recommendations from Shadowing The Ground
  - Personalized Recommendations
  - Shadowing The Ground User Reviews and Ratings
  - Shadowing The Ground and Bestseller Lists
5. Accessing Shadowing The Ground Free and Paid eBooks
  - Shadowing The Ground Public Domain eBooks
  - Shadowing The Ground eBook Subscription Services
  - Shadowing The Ground Budget-Friendly Options

6. Navigating Shadowing The Ground eBook Formats
  - ePub, PDF, MOBI, and More
  - Shadowing The Ground Compatibility with Devices
  - Shadowing The Ground Enhanced eBook Features
7. Enhancing Your Reading Experience
  - Adjustable Fonts and Text Sizes of Shadowing The Ground
  - Highlighting and Note-Taking Shadowing The Ground
  - Interactive Elements Shadowing The Ground
8. Staying Engaged with Shadowing The Ground
  - Joining Online Reading Communities
  - Participating in Virtual Book Clubs
  - Following Authors and Publishers Shadowing The Ground
9. Balancing eBooks and Physical Books Shadowing The Ground
  - Benefits of a Digital Library
  - Creating a Diverse Reading Collection Shadowing The Ground
10. Overcoming Reading Challenges
  - Dealing with Digital Eye Strain
  - Minimizing Distractions
  - Managing Screen Time
11. Cultivating a Reading Routine Shadowing The Ground
  - Setting Reading Goals Shadowing The Ground
  - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Shadowing The Ground
  - Fact-Checking eBook Content of Shadowing The Ground
  - Distinguishing Credible Sources
13. Promoting Lifelong Learning
  - Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
14. Embracing eBook Trends
  - Integration of Multimedia Elements

- Interactive and Gamified eBooks

### **Shadowing The Ground Introduction**

Shadowing The Ground Offers over 60,000 free eBooks, including many classics that are in the public domain. Open Library: Provides access to over 1 million free eBooks, including classic literature and contemporary works. Shadowing The Ground Offers a vast collection of books, some of which are available for free as PDF downloads, particularly older books in the public domain. Shadowing The Ground : This website hosts a vast collection of scientific articles, books, and textbooks. While it operates in a legal gray area due to copyright issues, its a popular resource for finding various publications. Internet Archive for Shadowing The Ground : Has an extensive collection of digital content, including books, articles, videos, and more. It has a massive library of free downloadable books. Free-eBooks Shadowing The Ground Offers a diverse range of free eBooks across various genres. Shadowing The Ground Focuses mainly on educational books, textbooks, and business books. It offers free PDF downloads for educational purposes. Shadowing The Ground Provides a large selection of free eBooks in different genres, which are available for download in various formats, including PDF. Finding specific Shadowing The Ground, especially related to Shadowing The Ground, might be challenging as theyre often artistic creations rather than practical blueprints. However, you can explore the following steps to search for or create your own Online Searches: Look for websites, forums, or blogs dedicated to Shadowing The Ground, Sometimes enthusiasts share their designs or concepts in PDF format. Books and Magazines Some Shadowing The Ground books or magazines might include. Look for these in online stores or libraries. Remember that while Shadowing The Ground, sharing copyrighted material without permission is not legal. Always ensure youre either creating your own or obtaining them from legitimate sources that allow sharing and downloading. Library Check if your local library offers eBook lending services. Many libraries have digital catalogs where you can borrow Shadowing The Ground eBooks for free, including popular titles. Online Retailers: Websites like Amazon, Google Books, or Apple Books often sell eBooks. Sometimes, authors or publishers offer promotions or free periods for certain books. Authors Website Occasionally, authors provide excerpts or short stories for free on their websites. While this might not be the Shadowing The Ground full book , it can give you a taste of the authors writing style. Subscription Services Platforms like Kindle Unlimited or Scribd offer subscription-based access to a wide range of Shadowing The Ground eBooks, including some popular titles.

### **FAQs About Shadowing The Ground Books**

**What is a Shadowing The Ground PDF?** A PDF (Portable Document Format) is a file format developed by Adobe that

preserves the layout and formatting of a document, regardless of the software, hardware, or operating system used to view or print it. **How do I create a Shadowing The Ground PDF?** There are several ways to create a PDF: Use software like Adobe Acrobat, Microsoft Word, or Google Docs, which often have built-in PDF creation tools. Print to PDF: Many applications and operating systems have a "Print to PDF" option that allows you to save a document as a PDF file instead of printing it on paper. Online converters: There are various online tools that can convert different file types to PDF. **How do I edit a Shadowing The Ground PDF?** Editing a PDF can be done with software like Adobe Acrobat, which allows direct editing of text, images, and other elements within the PDF. Some free tools, like PDFescape or Smallpdf, also offer basic editing capabilities. **How do I convert a Shadowing The Ground PDF to another file format?** There are multiple ways to convert a PDF to another format: Use online converters like Smallpdf, Zamzar, or Adobe Acrobats export feature to convert PDFs to formats like Word, Excel, JPEG, etc. Software like Adobe Acrobat, Microsoft Word, or other PDF editors may have options to export or save PDFs in different formats. **How do I password-protect a Shadowing The Ground PDF?** Most PDF editing software allows you to add password protection. In Adobe Acrobat, for instance, you can go to "File" -> "Properties" -> "Security" to set a password to restrict access or editing capabilities. Are there any free alternatives to Adobe Acrobat for working with PDFs? Yes, there are many free alternatives for working with PDFs, such as: LibreOffice: Offers PDF editing features. PDFsam: Allows splitting, merging, and editing PDFs. Foxit Reader: Provides basic PDF viewing and editing capabilities. How do I compress a PDF file? You can use online tools like Smallpdf, ILovePDF, or desktop software like Adobe Acrobat to compress PDF files without significant quality loss. Compression reduces the file size, making it easier to share and download. Can I fill out forms in a PDF file? Yes, most PDF viewers/editors like Adobe Acrobat, Preview (on Mac), or various online tools allow you to fill out forms in PDF files by selecting text fields and entering information. Are there any restrictions when working with PDFs? Some PDFs might have restrictions set by their creator, such as password protection, editing restrictions, or print restrictions. Breaking these restrictions might require specific software or tools, which may or may not be legal depending on the circumstances and local laws.

### **Find Shadowing The Ground :**

[affordable way to use AI for TikTok growth step by step BATCH78-545](#)

[easy method to launch AI agency with free tools BATCH78-1813](#)

[step by step guide to create digital products with AI step by step BATCH78-1066](#)

[affordable way to grow email list using AI organically BATCH78-1099](#)

**[best way to use AI for local SEO without paid ads BATCH78-1558](#)**

[without experience how to sell AI generated art organically BATCH78-1576](#)

*how to launch AI agency organically BATCH78-1891*

**how to start AI consulting business step by step BATCH78-880**

**without experience how to grow email list using AI for small business owners BATCH78-1289**

**free way to make money with AI tools with free tools BATCH78-93**

*affordable way to use AI for local SEO for content creators BATCH78-2127*

**free way to create digital products with AI for beginners BATCH78-1185**

complete beginner guide to offer AI services to clients for beginners BATCH78-1794

easy method to launch AI agency for small business owners BATCH78-1644

**proven strategy to create AI powered SaaS without paid ads BATCH78-742**

## **Shadowing The Ground :**

anatomy lab sheep heart dissection answers key full pdf - Jan 12 2022

**heart dissection lab traugh name studocu - Jul 30 2023**

web many people will be squeamish about this and because the heart is slippery it is easy to drop don't be shy with the heart use your fingers to feel your way through the

**lab 2 anatomy of the heart anatomy physiology bio 161 - May 28 2023**

web purchase includes the physical model powerpoint slides pdf handouts guided reading graphic organizers dissection templates extension questions and answer keys

**virtual sheep heart dissection lab mrs merritt s - Mar 14 2022**

*sheepheartdissectionanswerkey 1 pdf sheep heart dissection - Jun 16 2022*

web this extraordinary book aptly titled anatomy lab sheep heart dissection answers key compiled by a highly acclaimed author immerses readers in a captivating

*key of heartdissectionlab 2020 2021 sheep heart - Dec 23 2022*

web oct 21 2023 sheep heart dissection questions flashcards quizlet study with quizlet and memorize flashcards containing terms like how can you tell which side of the heart

anatomy lab sheep heart dissection answers key latopdf pro - May 16 2022

web virtual sheep heart dissection refers to the process of dissecting and studying the anatomy of a sheep heart using digital or online resources instead of performing a physical

**sheep heart dissection lab heart anatomy flashcards quizlet** - Aug 19 2022

web purpose to examine the major features of a mammalian heart the following is the procedure for the actual dissection read through the lab and answer the questions

[lab manual heart texas tech university health](#) - Feb 22 2023

web all mammalian hearts follow the same basic pattern two atria two ventricles and four major vessels the dissection of the heart occurs in two phases phase 1 involves the

**heart dissection lt anatomy collection adi** - Jan 24 2023

web start studying sheep heart dissection lab heart anatomy learn vocabulary terms and more with flashcards games and other study tools

*chapter 5 heart dissection anatomy and physiology 2* - Mar 26 2023

web oct 27 2022 109 users description this interactive modular lab explores the tools that doctors use to examine and diagnose patients with heart conditions in this lab students

[16 7 heart dissection medicine libretexts](#) - Jun 28 2023

web aug 7 2023 lab 2 anatomy of the heart lab 5 blood pressure measurement lab 6 lymphatic anatomy lab 7 anatomy of the respiratory system lab 8 respiratory

[mammalian heart dissection answer sheet studocu](#) - Aug 31 2023

web bio 30 human anatomy heart dissection lab obtain a sheep heart provided for this lab section remove the fat the heart will have adipose tissue surrounding it this fat needs

**heart anatomy virtual dissection the biology corner** - Sep 19 2022

web looking for virtual sheep heart dissection lab answer key to fill cocodoc is the best spot for you to go offering you a great and easy to edit version of virtual sheep heart

*sheep heart dissection lab anatomy and physiology tpt* - Feb 10 2022

*online dissection resources the science bank* - Apr 26 2023

web identify internal anatomical structures of the heart 1 instruments figure 5 1 surgical instruments image by karolinska institutet cc by 4 0 figure 5 2 forceps and

[cardiology virtual lab hhmi biointeractive](#) - Oct 21 2022

web anatomy lab sheep heart dissection answers key book review free download anatomy lab sheep heart dissection answers key latopdf pro anatomy lab

**virtual sheep heart dissection lab answer key fillable** - Apr 14 2022

**the heart dissection lab flashcards quizlet** - Oct 01 2023

web 4 chambers right atrium right ventricle left atrium left ventricle which chambers are the pumping chambers of the heart ventricles which chambers are the receiving

**sheep heart dissection questions flashcards quizlet** - Jul 18 2022

web 16 q a more from the teacher team description this lab will cover 15 anatomical structures in the heart as well as 20 other discussion questions

**pig heart dissection answer key lab questions** - Nov 21 2022

web sheep heart dissection answer key student handout external anatomy 1 identify the right and left sides of the heart look closely and on one side you will see a diagonal line

**virtual sheep heart dissection lab answer key fill online** - Dec 11 2021

**making communicative language teaching happen second** - Apr 29 2022

web jun 16 2003 praised for its fresh and informed discussion of language instruction and language acquisition the first edition of making communicative language teaching

**making communicative language teaching happen open library** - Jan 27 2022

web making communicative language teaching happen begins by defining communicative language teaching and proceeds to explore its underlying assumptions to examine the

**eric ed418592 making communicative language** - Nov 05 2022

web making communicative language teaching happen volume 1 james f lee bill vanpatten mcgraw hill 1995 communicative competence 291 pages 2 reviews

*making communicative language teaching happen* - Feb 25 2022

web description praised for its fresh and informed discussion of language instruction and language acquisition the first edition of making communicative language teaching

**making communicative language teaching happen** - Jan 07 2023

web eissn n a making communicative language teaching happen volume 1 directions for language learning and teaching lee james f vanpatten bill this book is

**making communicative language teaching happen worldcat org** - May 31 2022

web communicative language teaching clt or the communicative approach ca is an approach to language teaching that emphasizes interaction as both the means and the

**making communicative language teaching happen volume 1** - Sep 03 2022

web making communicative language teaching happen text mcgraw hill foreign language professional series lee james vanpatten bill amazon com tr

*making communicative language teaching happen* - May 11 2023

web making communicative language teaching happen communication and skill dec 26 2022 in this module on communication the reader explores the nature and

**making communicative language teaching happen** - Mar 09 2023

web making communicative language teaching happen is intended as a guide to help language teachers develop communicative classroom environments that blend

making communicative language teaching happen - Jul 13 2023

web dec 1 2004 extract making communicative language teaching happen 2nd ed james f lee and bill vanpatten boston mcgraw hill 2003 pp vi 300 75 65

*making communicative language teaching happen 2 e* - Feb 08 2023

web jan 1 2003 request pdf on jan 1 2003 donna reseigh long and others published making communicative language teaching happen find read and cite all the

**making communicative language teaching happen** - Nov 24 2021

web making communicative language happen directions for language learning and teaching vol 1 lee amazon com tr kitap

communicative language teaching wikipedia - Mar 29 2022

web dec 5 2020 making communicative language teaching happen 2nd ed by james f lee 0 ratings 0 want to read 1 currently reading 0 have read this edition doesn t have

**making communicative language teaching happen** - Aug 02 2022

web making communicative language teaching happen authors james f lee bill vanpatten summary the guiding principle of making communicative language

**making communicative language teaching happen** - Dec 06 2022

web jun 16 2003 the guiding principle of making communicative language teaching happen is the premise that communication is the expression interpretation and

*making communicative language teaching happen* - Oct 04 2022

web dec 1 2004 communicative language teaching clt has been accepted as one of the teaching methods by numerous language teachers due to its major focus on developing

**making communicative language teaching happen alibris** - Oct 24 2021

[making communicative language teaching](#) - Aug 14 2023

web may 19 2003 the guiding principle of making communicative language teaching happen is the premise that communication is the expression interpretation and negotiation of meaning and not simply oral

[making communicative language teaching happen google](#) - Jun 12 2023

web making communicative language teaching happen praised for its fresh and informed discussion of language instruction and language acquisition the first edition of

[making communicative language happen directions for](#) - Sep 22 2021

**download making communicative language teaching happen** - Dec 26 2021

web praised for its fresh and informed discussion of language instruction and language acquisition the first edition of making communicative language teaching happen

[making communicative language teaching happen](#) - Jul 01 2022

web praised for its fresh and informed discussion of language instruction and language acquisition the first edition of making communicative language teaching happen

[making communicative language teaching happen semantic](#) - Apr 10 2023

web jan 26 1995 biology education linguistics tldr this book discusses issues in testing comprehension and in evaluating writing as well as suggestions for using information

[big blue whale nicola davies 9780744578966 abebooks](#) - Nov 28 2022

web the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells like and learning facts about a whale s size life span diet babies and more synopsis may belong to another edition of this title about the author

[big blue whale nature storybooks amazon com tr kitap](#) - Oct 28 2022

web arama yapmak istediğiniz kategoriye seçin

**big blue whale nature storybooks amazon co uk** - Jun 04 2023

web jun 7 2012 the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells like and learning facts about a whale s size life span diet babies and more

[big blue whale walker books australia](#) - Apr 02 2023

web nature storybooks series age 5 nature the natural world buy now find out about the largest mammal on the planet in this fun informative award winning picture book part of the nature storybooks series the blue whale

**big blue whale read and wonder by nicola davies goodreads** - Aug 06 2023

web jun 2 1997 big blue whale is a book all about whales the lifestyle of a whale was told and the details about the body was described a big blue whale is the biggest creature on earth with the size of 100 feet long and weighs 150 tons they only eat krill and have to migrate to warmer waters in the winter season

**big blue whale book reviews rgfe reading groups** - Jul 25 2022

web jul 21 2020 find out about the largest mammal on the planet in this fun informative award winning picture book part of the nature storybooks series tweet rate and review add to reading list

big blue whale a book by nicola davies and nick maland - Dec 30 2022

web the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells like and learning facts about a whale s size life span diet babies and more product details price 7 99 7 59 publisher walker books ltd publish date 30 july 2015

**big blue whale best books for schools** - Apr 21 2022

web jul 30 2015 the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells like and learning facts about a whale s size life span diet babies and more tagged dolphins whales and sea mammals and oceans the nature storybooks series

9780744578966 big blue whale davies nicola 0744578965 - May 23 2022

web the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and more buy new learn more about this copy 7 21 convert currency shipping free within united kingdom destination rates speeds add to basket

**big blue whale nature storybooks by nicola davies booktopia** - Sep 26 2022

web oct 1 2015 product details mother s day delivery find out about the largest mammal on the planet in this fun informative award winning picture book part of the nature storybooks series the blue whale is the biggest animal that has ever lived on earth

*big blue whale nature storybooks davies nicola* - Aug 26 2022

web the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells like and learning facts about a whale s size life span diet babies and more

big blue whale by davies nicola abebooks - Feb 17 2022

web big blue whale nature storybooks davies nicola published by walker 2008 isbn 10 1406312576 isbn 13 9781406312577 seller reuseabook gloucester united kingdom seller rating contact seller book used softcover condition used good 1 23

convert currency 1 20 shipping within united kingdom quantity 2 add to basket

**big blue whale 1 nature storybooks nicola davies** - Sep 07 2023

web big blue whale 1 nature storybooks nicola davies amazon com tr Çerez tercihlerinizi seçin alışveriş deneyiminizi geliştirmek hizmetlerimizi sunmak müşterilerin hizmetlerimizi nasıl kullandığını anlayarak iyileştirmeler yapabilmek ve tanıtımları gösterebilmek için çerezler ve benzeri araçları kullanmaktayız

**big blue whale nature storybooks amazon co uk** - Oct 08 2023

web paperback 7 april 2008 the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells like and learning facts about a whale s size life span diet babies and more

**9781406312577 big blue whale nature storybooks by davies** - Mar 21 2022

web the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells

**big blue whale nature storybooks davies nicola** - Jan 31 2023

web the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous exploration of what a blue whale feels sounds and smells like and learning facts about a whale s size life span diet babies and more

**big blue whale nicola davies nick maland 9780744578966** - Mar 01 2023

web children s books animals buy new 11 88 get fast free shipping with amazon prime free returns free delivery thursday february 16 if you spend 25 on items shipped by amazon select delivery location only 3 left in stock more on the way qty 1 buy now secure transaction ships from amazon com sold by amazon com returns

**big blue whale davies nicola maland nick amazon in books** - May 03 2023

web nicola davies big blue whale paperback picture book 30 july 2015 by nicola davies author nick maland illustrator 4 7 175 ratings part of read and wonder 50 books see all formats and editions school library binding 3 011 00 1 used from 2 672 23 1 new from 3 011 00 paperback 715 00 4 new from 713 00 save extra with 3 offers

[big blue whale booktrust](#) - Jun 23 2022

web big blue whale author nicola davies illustrator nick maland publisher walker books nicola trained as a zoologist taking a degree in natural sciences from king s college cambridge she spent some years as a field biologist and studied humpback and sperm whales and bats before joining the bbc natural history unit as a researcher and

**big blue whale nicola davies google books** - Jul 05 2023

web the blue whale is the biggest animal that has ever lived on earth curious young minds will love reading this sensuous

exploration of what a blue whale feels sounds and smells like and