science LENS news

THE NEWSLETTER OF SCIENCELENS LTD

VOLUME 2 • NUMBER 8 • NOV/DEC 2011

The macro edition

Email and win!

Can you identify the location of the pin on the cover? Email me your answer before 5pm Monday 21 November, and stand the chance to win a free photoshoot!

(details on page 9)

IN THIS ISSUE:

sciencelens.

PHOTOGRAPHING
SCIENCE, INDUSTRY
AND TECHNOLOGY

From the editor

gerry@sciencelens.co.nz

SCANZ Science Communicators Association of New Zealand
Full member

Good day, everybody.

Welcome to the new-look Sciencelens newsletter! We've spruced up the look and feel a bit – let me know what you think!

Hard to believe we're halfway through November already! It has been an interesting year thus far, and I'm sure the last month and a half will present its own share of excitement, including various events scheduled to celebrate the year that's been. If you or your organisation are planning something special, and are considering capturing the memories, have a look at our year-end event photography offer on page 3.

As promised in our previous newsletter, our focus in this issue falls on the wonderful world of macro photography. Turn to page 4 to read more about this exciting genre of photography. Enjoy it!

In another new Sciencelens development, we are in the process of launching the design leg of our business – Sciencelens Design. More on this in 2012, but as a brief taster, we offer a special deal on custom designed 2012 year planners. See page 8 for more details.

I hope you will find something to tickle your fancy in this newsletter. If there are any photography subjects you'd like to read more about in future editions of the Sciencelens newsletter, please let me know.

Gerry

science graffiti

"Knowledge is the food 4 Wisdom"

As many of you will know, I'm on a quest to find and capture interesting examples of the art of science graffiti around New Zealand. I discovered the striking mural above on a visit to Rotorua, during an assignment. The biology-themed mural depicts a huge, vibrant and colourful aquatic scene, prominently bearing the statement "Knowledge is the food 4 Wisdom".

YEAR-END EVENTS SPECIAL

Create memories –
Capture the moment!

Are you planning a special festive event to celebrate the past year? Perhaps an outing somewhere, a team-building session, a themed party or even a formal evening event?

If so, why not keep a visual memory of the event and have it photographed, for your staff newsletter, Intraweb or even just for the notice board in the tearoom?

Here at **Sciencelens**, we have more than 5 years experience in photographing diverse events, from large industry conferences through to small and intimate year-end parties and team building sessions. We are currently running a year-end event photography special:
— **$119.00** (excl GST) for **1 hour's** coverage, or **$179.00** (excl GST) for **2 hours.**
This includes processing of selected images and delivery of high-resolution photographs on CD.

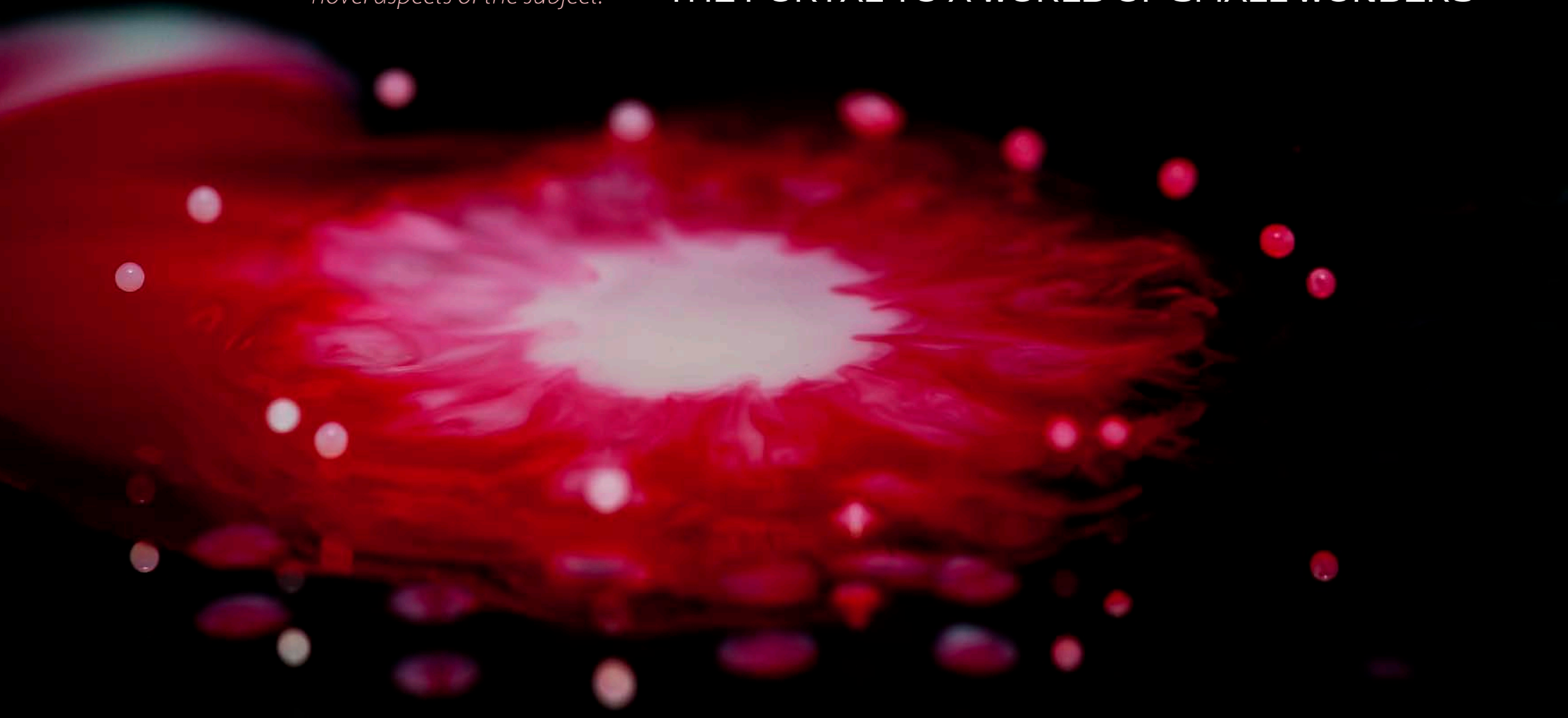
For local events (Wellington, Palmerston North and surrounding areas), the cost of travel is included. Contact me for travel rates elsewhere across the country.

Book now! Phone Gerry at 027 510 5177 or 06 3566 377 or email gerry@sciencelens.co.nz.

Macro photography is surely one of the most immediately striking and impressive photographic genres in science photography and beyond. It shows us subjects at a scale we don't often see, and from a viewpoint that brings to life novel aspects of the subject.

Macro photography

THE PORTAL TO A WORLD OF SMALL WONDERS



Macro photography (cont.)

PRODUCING AN IMAGE THAT SHOWS

a subject at a larger magnification than usual does not, however, mean that we have created a successful macro photo. On the contrary, this is often a hurdle for a photographer first venturing into the macro field - one easily becomes infatuated by the magnification, and forgets the need to still create a visually stimulating composition.

So what can you do to transform your macro images from the mundane to the magnificent?

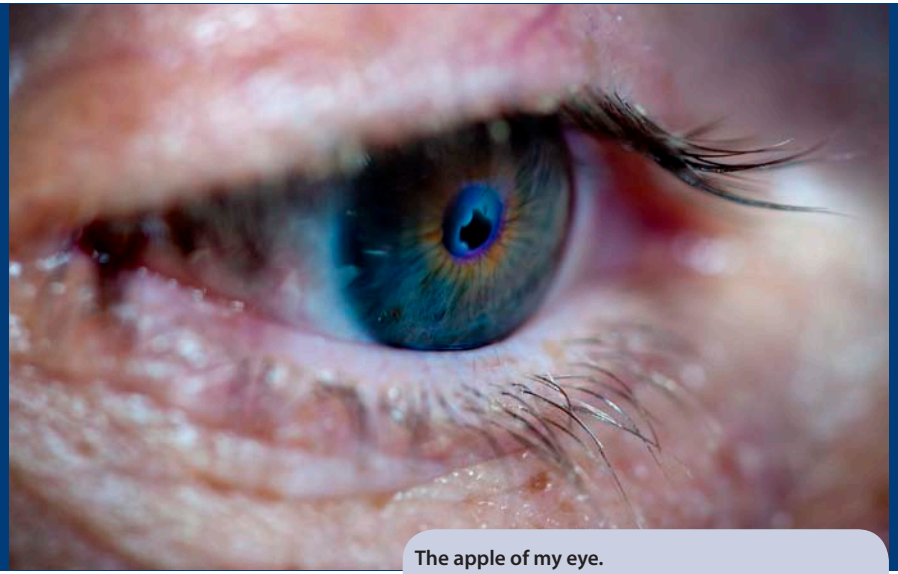
Patience and preparation

Unless you are very experienced, or more likely extraordinarily lucky, macro photography is not a hit-at-first-shot game. Given the difficulty of focusing at macro distances, and the fact that you often have to maneuvre yourself into very uncomfortable shooting positions to get close enough to your subject, you are likely to spend more time and effort than anticipated to get a good shot. In the case of living subjects like insects, you will also have to spend time waiting for (or running after!) your subject, to be in the right position at the right time, and then you're still lucky if you're given a sufficient window of opportunity to get your shot.

When an opportunity does arise, you need to be prepared - pre-anticipate the shooting scenario, and select the appropriate settings for ISO, aperture etc. In this way you will be as ready as possible when the elusive little critter decides to settle down for a few seconds.

Committing to the scene, you need to work fast, and try to get as many shots as possible, shooting from different angles, and with different points of focus, to optimise your chances of capturing that special image.

As with all forms of photography, lighting is a key component in macro photography. While front lighting is critical to provide basic illumination to a subject, back light can play an important role in highlighting subtle details such as the veigns in plant leaves and insect wings, or in this case, the shape and texture of smoke twirls.



The apple of my eye.
Macro photography can be used to create striking and novel commercial/advertising images. Note that when photographing reflections such as this, it is technically not possible to have both the reflective surface and the image being reflected, in focus. This is due to the relative distances between the camera, the reflective subject and the reflected object. Email me if you're curious to find out more.

Lighting the subject

Lighting can present special challenges in macro photography. Given the close proximity to the subject, the on-camera flash seldom works, as it may be partially shielded by the lens, especially if you are using a lens-hood. As a result, you either have to use an off-camera flash or a special macro flash (usually mounted on the lens and illuminating the subject from all sides for an even exposure), or you need to use natural available light.

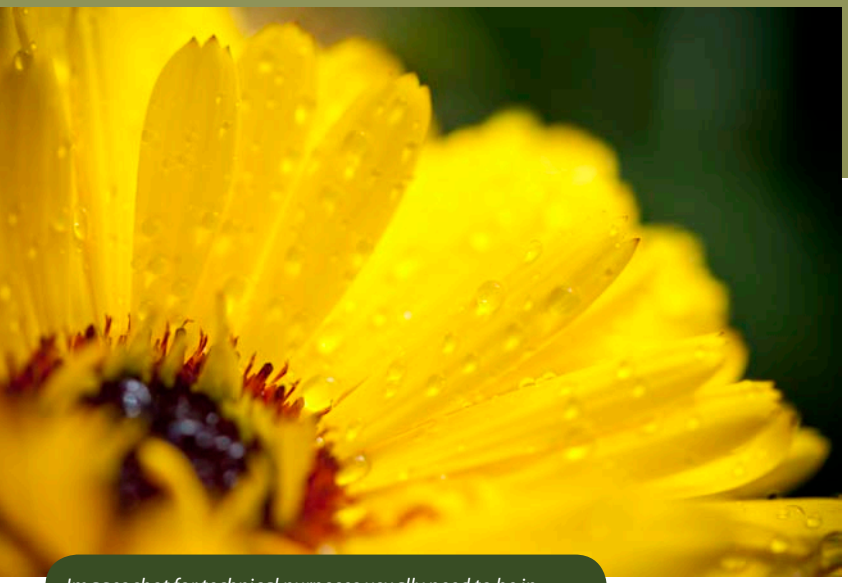
Bright sunlight is good in that it allows you to work with small apertures while maintaining reasonably fast shutter speeds, which is often necessary in macro photography. However, if direct, full sunlight falls on your subject, it is likely to result in harsh contrast, with over-bright highlights and dark shadows. This can be overcome by shielding your subject with a diffuser made of thin, translucent material, softening the light while still retaining decent brightness. Alternatively, working out of direct sunlight, or ideally on a fairly bright overcast day tends to give good results.

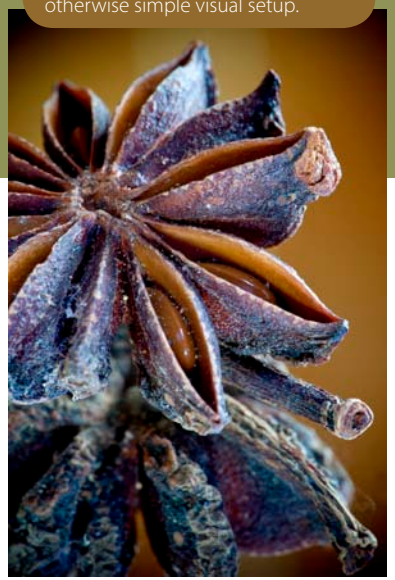
The direction of the light also plays an important role. For most technical macro shots where detail is important, a combination of front- and/or side-lighting usually works best. However, when photographing translucent subjects such as flowers, leaves and insect wings, some backlighting can be very effective to bring out detail. With back-lighting however, some fill light from the front is required to avoid a silhouette effect - any form of reflector will be useful in this regard.

Depth of field

During macro photography, the extremely close focus distance results in a particularly narrow depth of field. As a result, the camera's aperture (lens opening) needs to

Macro photography (cont.)





Photographing subjects in an interesting context, such as on a mirror, can help to add interest to an otherwise simple visual setup.

Images shot for technical purposes usually need to be in focus throughout the subject, but in the case of more artistic imagery, shallow depth of field can be quite effective.

be set as small as possible, typically f/22 or smaller, to achieve sufficient depth of field to keep most of your subject in focus. Even small apertures, however, still only provide limited depth of field, so it is good practice to arrange important focus elements in the same focal plane.

While scientific subjects often require deeper depth of field, macro images with very shallow focal depth can also be effective, particularly in more artistic images.

Avoid background distractions

Backgrounds in macro photos tend to be, by default, very blurred and out of focus, thus avoiding many of the typical problems amateur photographers often experience with unwanted distractions in the background.

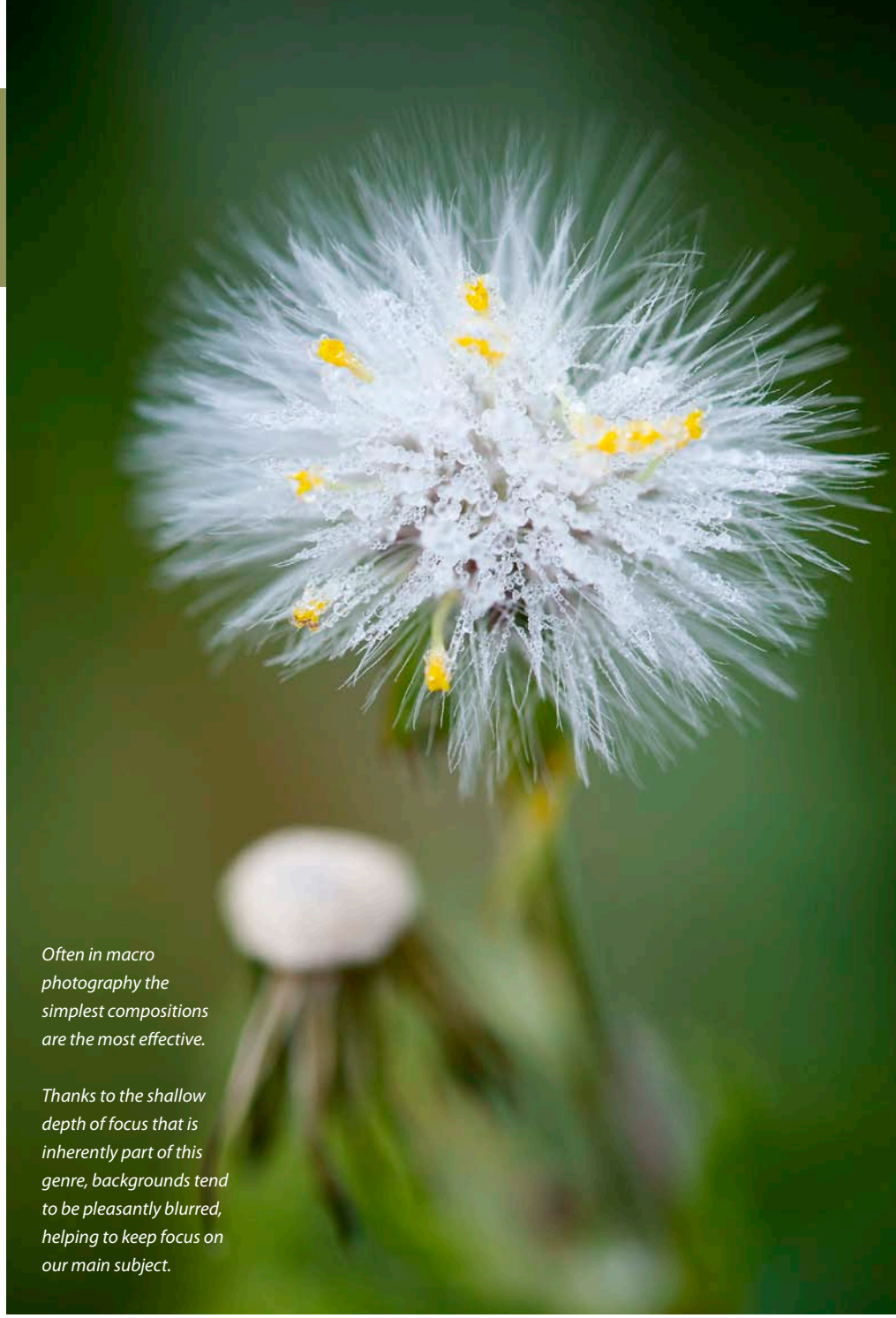
However, even an out-of-focus background may contain distractive patterns and/or colours, so it is still important to keep an eye out for potential distractions. Luckily modern digital photography allows us to quickly review images, and it is good practice to constantly check your macro photos while you have your shot/scene set up, rather than discovering a distracting highlight or colour spot in the background afterwards, thus forcing you to redo the entire setup.

Patterns and textures

Thanks to the novel views provided by extreme close-up photography, everyday subjects can often appear in a new light when viewed through a macro lens. In particular, patterns and textures presented at novel angles can create striking macro images. Look for fine patterns and textures when searching for subjects to photograph in macro mode.

Interesting angles

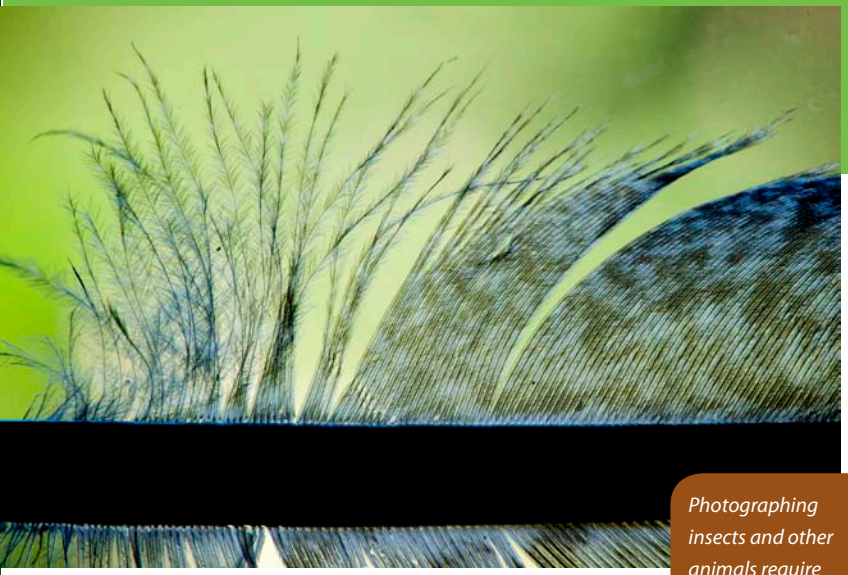
When thinking about macro photography, flowers and plants are subjects that come to mind immediately. However, there are probably more than enough straight forward macro flower shots in existence by now, and photographing yet another such image will add lttle to the world of photography. However, the combination of all possible angles of view, angles of lighting and depths of field are so vast that there is sure to be a novel view on your subject if you look hard enough. Looking through the camera at the flower and moving around to explore different angles is a good way to discover more original and pleasing

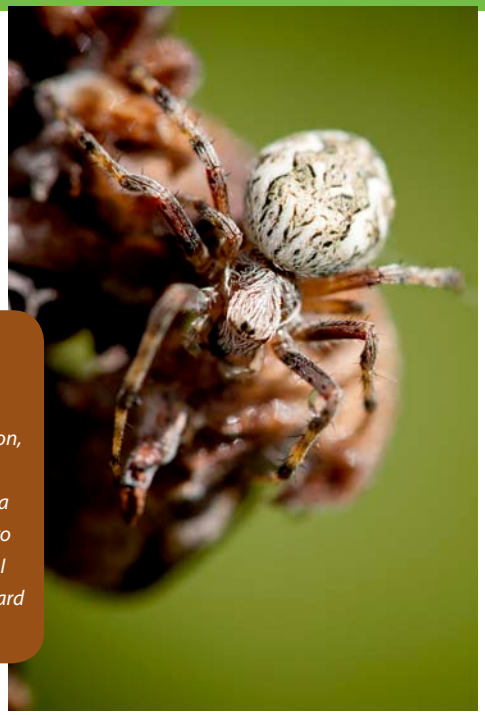


Often in macro photography the simplest compositions are the most effective.

Thanks to the shallow depth of focus that is inherently part of this genre, backgrounds tend to be pleasantly blurred, helping to keep focus on our main subject.

Macro photography (cont.)





Photographing insects and other animals require loads of preparation, patience and timing. Definitely a sub-genre of macro photography that I am still working hard at mastering.

viewpoints. Combining this with different lighting directions and photographing the resulting scene with different depths of field will boost your chances of achieving a striking result.

Simplify

This is a field of photography where the "less is more" adage definitely holds true. The best macro images are striking in their simplicity - a strong point of focus, a simple background or an interesting texture.

Avoiding blurred subjects

When you magnify a subject, you will by default also magnify any degree of movement in the subject. As such it is critical to try and keep both the subject and the camera as still as possible. In terms of the subject, you need to limit movement caused by the wind etc, while the camera also needs to be kept perfectly still - ideally mounted on a sturdy tripod, and using a cable/remote release or a timer release to avoid any camera shake.

Using a fast shutter speed will also help minimise the effects of movement (from either the subject or the camera).

The other problem common in macro photography is out of focus subjects, due to the narrow depth of focus. Manual focus tends to give better results than trusting the camera's autofocus system, and shooting multiple exposures in short succession (continuous shooting mode) can increase you chances of a good shot, especially with fast moving bugs and insects. A small aperture to increase the focal depth, can also help.

Just remember, a fast shutter speed (to avoid movement blur) + small aperture (to avoid focus blur) = the need for good light!

Coming up: Part 2: Technical considerations

Next month (just in time for Christmas!) we'll discuss some of the technical requirements for macro photography - lenses, cameras, extension tubes, etc. We will also share some tips on using your point-and-shoot for close-up photography. Don't miss it!

One of the greatest joys of this genre is discovering amazing visual delights in the simplest of subjects. I marvel at the patterns and textures in this close-up view of a simple lightbulb.

YEAR PLANNERS 2012

A year planner, showing an entire year on a single sheet, is a great way to help you bring some much-needed order to your life.

As an introduction to Sciencelens Design (the design leg of our company which we anticipate to be a focus growth area in 2012) we are offering custom designed year planners, complete with your own company branding, personalised images (we can also assist by capturing new company images at very special rates) and any company specific date details that you may need incorporated on your calender.

Our special rates (excl GST) for A1 size, full-colour year planners, layout included, are:

- 250 copies = $1250.00
- 500 copies = $1300.00
- 1000 copies = $1580.00
- 2000 copies = $2280.00

10 Photography Quotes that You Should Know

- You don't take a photograph, you make it. - *Ansel Adams*
- Your first 10,000 photographs are your worst. – *Henri Cartier-Bresson*
- Beauty can be seen in all things, seeing and composing the beauty is what separates the snapshot from the photograph. – *Matt Hardy*
- Nothing happens when you sit at home. I always make it a point to carry a camera with me at all times…I just shoot at what interests me at that moment. – *Elliott Erwitt*
- Which of my photographs is my favorite? The one I'm going to take tomorrow. – *Imogen Cunningham*
- You've got to push yourself harder. You've got to start looking for pictures nobody else could take. You've got to take the tools you have and probe deeper. – *William Albert Allard*
- If I saw something in my viewfinder that looked familiar to me, I would do something to shake it up. – *Garry Winogrand*
- I always thought good photos were like good jokes. If you have to explain it, it just isn't that good. – *Anonymous*
- Twelve significant photographs in any one year is a good crop. – *Ansel Adams*
- It can be a trap of the photographer to think that his or her best pictures were the ones that were hardest to get. – *Timothy Allen – On editing photos*

http://www.digital-photography-school.com/photography-quotes

NEWS SNIPPETS

Upcoming conferences

- **ScienceTeller Festival**, 15-19 Nov 2011, Dunedin
- **2011 Surveying & Spatial Sciences Conference**, 21-25 Nov 2011, Wellington
- **HINZ - Health Informatics New Zealand Conference**, 23-25 Nov 2011, Auckland
- **New Zealand Water Safety Conference 2011**, 24-25 Nov 2011, Wellington
- **NZ Institute of Chemistry Conference 2011**, 27-30 Nov 2011, Hamilton
- **5th International Conference on Sensing Technologies**, 28 Nov-1 Dec 2011, Palmerston North
- **Geosciences 2011 Conference**, 27 Nov - 1 Dec 2011, Nelson
- **Functional Foods Symposium**, 30 Nov 2011, Auckland
- **19th International Congress of Biometeorology (ICB2011)**, 4-8 Dec 2011, Auckland
- **25th International Congress for Conservation Biology (ICCB)**, 5-9 Dec 2011, Auckland

ScienceTeller 2011

University of Otago's Centre for Science Communication will host the inaugural ScienceTeller Festival, 15-19 November 2011. In the words of the organisers, *"ScienceTeller is a celebration of Storytelling and Science dedicated to documentary filmmaking, writing and other creative media."* (http://www.scienceteller.com/)

2011 Gold CREST Award

Congrats to Charlotte Robertson of Palmerston North Girls' High School who has been awarded a Gold CREST award for her "Watercress – The Nitrogen Junkie?" project.

The aim of this project was to determine the effectiveness of watercress (*Nasturtium officinale*) to reduce nitrogen pollution in waterways by quantifying the mass balance and determining how much nitrogen the plants can take up from hydroponic solution over a 10-week period.

The results achieved support the hypothesis that watercress could potentially be used effectively to remove nitrogen (and potentially other nutrients such as phosphates), from waterways contaminated by excess nutrient pollution.

2012 Zonta Science Award Call for Applications

The Zonta Club of Wellington has released a call for applications for the 2012 Zonta Science Award, established to further the status of women in scientific fields. The award is for an emerging woman scientist - a recent PhD graduate, not a woman well established in the science arena. Priority will be given to areas of science where funding is not readily available.

Applications must be received by 10 February 2012. For more information and the application form contact Wendy Saunders, Convenor, 2012 Zonta Science Award, Zonta Club of Wellington, PO Box 10274, Wellington. saunderswendy77@gmail.com

COMPETITION RULES
The first correct entry drawn after 5pm on Monday 21 November 2011 will receive a free one hour photoshoot. Processing of images and delivery on CD included. Travelling is free within a 100km radius from Palmerston North. The date and time of the photoshoot is subject to availability.

The Continuing Advance of Image Analysis

Over the past 30 years, the science and applications of image analysis have developed rapidly and hand-in-hand. This advance shows no sign of letting up any time soon. This talk interweaves three themes: (i) basic ingredients of image analysis; (ii) a broadening set of applications that has been deployed; and (iii) the technological landscape which underpins (i) and (ii).

Professor Sir Michael Brady was one of the pioneers of computer vision during his time at MIT, and then as Head of the Robotics Research Group at University of Oxford. In this talk, he will provide an overview of his academic work which originated in the mathematical foundations of computer vision, before becoming far more applied with applications in robotics, the film industry, medical imaging and ancient history.

Date: Tuesday 22 November, 2 pm
Venue: Cotton Building, Lecture Theatre CO122, Kelburn Campus, Wellington
RSVP: rsvp@vuw.ac.nz / 04-472 1000 by Fri 18/11.

2011 New Zealand Research Honours

To acknowledge achievements across the whole of the research community, the Royal Society is proud to host the 2011 Research Honours Dinner. This prestigious event will comprise a gala banquet and the presentation of awards to eminent New Zealand academics and researchers.

The evening will also celebrate the Royal Society's annual presentation of the Rutherford Medal to honour the foremost New Zealand scientist of 2011. Notable amongst the medal winners will be the recipients of three inaugural medals – the Callaghan Medal for science communication, the MacDiarmid Medal for applied science research and the Humanities Aronui Medal for outstanding work in the Humanities.

Date: Wednesday 16 November, 7.00pm.
Venue: Wellington Foyer, Te Papa, Wellington
Tickets: $140 pp.
Contact: Faith Atkins, 04 470 5781, faith.atkins@royalsociety.org.nz

The world's most expensive photograph

NEW YORK — A 1999 photograph of the Rhine river by German artist Andreas Gursky has sold for $4.3 million in New York City, setting a record for any photograph sold at auction.

Titled "Rhein II," the chromogenic color print face-mounted to acrylic glass, had a pre-sale estimate of $2.5 million to $3.5 million. It was sold through Christie's.

Gursky's panoramic image of the Rhine is one of an edition of six photographs. Four are in major museums, including the Museum of Modern Art in New York and the Tate Modern in London. (2011 Associated Press) http://on.wsj.com/u5bBCF

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