



Volume 1  
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# WANDER to WONDER

**THIS ISSUE:  
NATIONAL BOTANICAL  
GARDEN OF GEORGIA -  
TBILISI'S WILD PARADISE**

# WANDER to WONDER

MARTINA NICOLLS



**The world will never starve for wonder, but only for want of wonder.**

**G.K. Chesterson**



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All photographs are by Martina Nicolls, taken at the National Botanical Garden of Georgia, 2012-2016.



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## editor's note

*Welcome to the first edition of WANDER to WONDER*

I am writing from Tbilisi, Georgia, a country in the Caucasus. The ancient country is the world's heartland of wine, gold, tea, warm healing waters, mineral springs, and archeological digs - the cradle of civilisation. I first arrived in Georgia in May 2010.

My favourite past-time is to wander both the planned and unruly paths and tracks of the wild 98 hectare National Botanical Garden of Georgia in the city centre of Tbilisi: in fact, in the Old City of Tbilisi. It is peaceful, ever-changing, and ever wondrous. With every walk - usually twice a week - I see something new and unexpected: staff preparing plots and planting seeds, buds, construction, repairs, animals and birds, growth and decay. In the daily evolution of nature, the constant in the garden is the sound of birds and running water - via rivers, channels, pipes, and waterfalls.

Inside this issue is a small portion of the botanical garden's wilderness and beauty in vivid colour.

As William Shakespeare said in *As You Like It*, 'I like this place and could willingly waste my time in it.'

Until next edition, with another theme,

*Martina*

MARTINA NICOLLS



**I go to nature to be soothed and healed, and to  
have my senses put in order.**

**John Burroughs**

## seasons

Much of Georgia is mountainous with a subalpine climate. The Caucasus Mountains, especially the Greater Caucasus Mountains, includes terrain that is more than 5,000 metres (16,500 feet) above sea level. However, the country is divided by two weather zones at the Surami Pass: subtropical climate on the Black Sea in western Georgia and continental climate in eastern Georgia. This means that tea and citrus fruits grow well in the west and vineyards grow well in the east. Apart from tea and wine, in the middle of the country is Borjomi, famous for its natural spring waters.

Typically Georgia has micro-climates, which provide the country with a diverse range of fauna and flora from fir and pine forests, bamboo, arid lowland plants, coastal vegetation, vineyards, sunflower farms, walnuts groves, and dense forests.

The temperatures average 3 C (37 F) in winter to 23 C (74 F) in summer. However, the snowy mountainous regions are much colder, the desert lowlands are much drier, the coastal regions are much wetter, and the subtropical regions are much hotter and more humid. For a small country, it has much to offer nature lovers. Therefore there are four distinct seasons: summer, autumn, winter, and spring.



*summer*

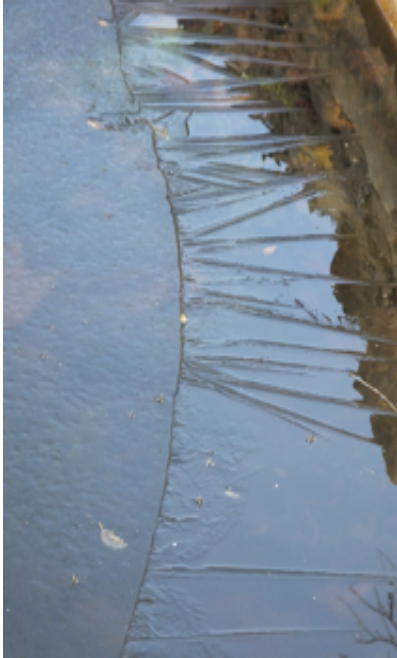




*autumn*



*winter*





*spring*



logo

logo of the  
National Botanical Garden of Georgia:  
the 1914 bridge over the waterfall





# history

The 98 hectare (242 acre) garden of the Narikali Fortress overlooking Tbilisi, the capital of Georgia, was established in 1636 as a garden for the royal family, and spread across the Sololaki ridge and valley. The fortress itself originated from the 4th century, expanding over the centuries, with most of the existing ruins originating from the 16th and 17th centuries. From the ridge, looking into the valley, is the river Tsavkisi with its two main waterfalls, and the expansive vegetation of the botanical garden.

The garden was part of the state since 1801, and from 1845 it was called the Tbilisi Botanical Garden and managed by scholars for scientific research. Although disbanded in 1934, it was reinstated in 1943 as part of the Academy of Sciences. The National Botanical Garden of Georgia (NBGG) is now the official name although many still refer to it as the Tbilisi Botanical Garden.



## a work in progress

The 98 hectare garden comprises about 40 hectares (98 acres) of plantations, roads, and buildings, with 58 hectares (143 acres) of natural vegetation. This natural Georgian flora has many endemic rare and threatened species. Year round the staff maintain the gardens, and continually upgrade and repair the features, such as steps, paths, walls, bridges and walkways, as well as watering, seeding, transplanting seedlings, clearing dry brush, mowing grasslands, rotating flower beds, trimming hedges, and pruning plants.





# admission



The National Botanical Garden of Georgia is open every day from 8:30 to 20:30. Admission is 2 GEL. The NBGG can be accessed at two points: (1) by cable car (or walk) to the Sololaki Ridge and the Narikala Fortress and statue of the Mother of Georgia, and (2) by walking uphill to # 1 Botanikuri Street near Meidan Square in the Old City of Tbilisi.

email: [info@nbgg.ge](mailto:info@nbgg.ge)

<http://www.nbgg.ge>

# native trees

The National Botanical Garden in Tbilisi has native and exotic trees from China, the Himalayas, Japan, North America, Turkey, Siberia, and the Mediterranean. They include cotoneasters, pyrachantha (firethorns), honeysuckle, European barberry (Berberis), hawthorn, Himalayan cedar, mock orange (Philadelphus), cedars, spruce, pine, and cypress.

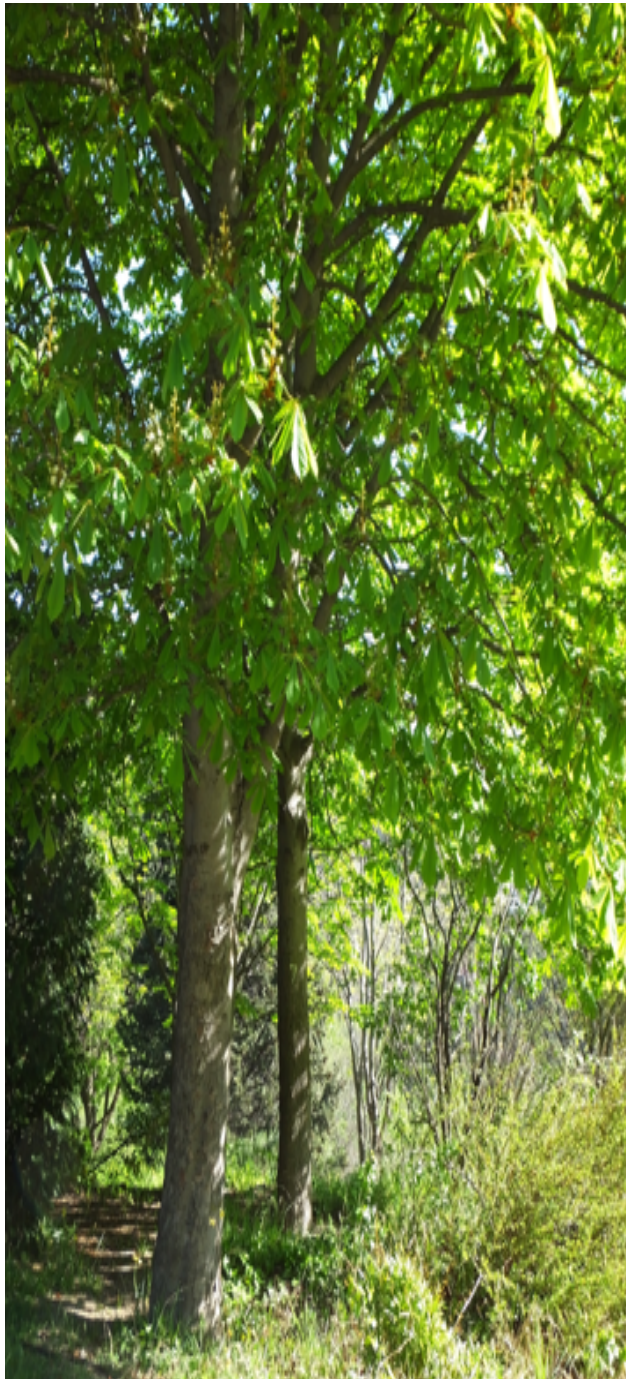
The Colchis pine (*Pinus pithyusa Colchida*) is a native Georgian pine, growing on mountain slopes and in between rocks and stones. Colchis is present-day Georgia.

The Caucasian Zelkova (*Zelkova carpinifolia*) is native to the Cauasus, found mainly in the western region of Georgia in Imereti. It's a medium to large deciduous tree grown ornamentally for its short broad trunk and vase-shaped crown.





# *trees*





# *palms*





# *bamboo*





# *bark*





# *leaves*





# tennis ball tree

As I was walking around the National Botanical Garden of Georgia I noticed large green tennis balls on the ground. They were really the fruit of the *Maclura pomifera*. The *Maclura pomifera* is commonly called Osage orange, or hedge apple, or horse apple, or monkey ball, or bois d'arc (bow wood). Pomifera means 'bearing apples' – because the fruit looks like green apples. The term Osage orange comes from the tree's use by the Osage Indians, who made bows from its wood. The tree is common in America, and was named after William Maclure (1763-1840). Maclure was a Scottish geologist, living in America, and president of the American Academy of Natural Sciences in Philadelphia. The *Maclura pomifera* is also found in countries such as Italy, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Slovenia, Serbia, Romania, India, Russia, and Georgia.

The tree is small and deciduous, about 8-15 metres tall (25-50 feet), with male and female flowers (*dioecious*). The fruit is round with bumpy nodes (but not spikey). The bumps are called drupes. The nodes are about 8-13 centimetres (3-5 inches) in diameter – the size of a tennis ball or grapefruit or large green apple. In autumn the nodes turn bright lime-green. The 'fruit' is said to be inedible, but apparently the brown seeds inside can be eaten – they are a bit like raw sunflower seeds, according to the Eat the Weeds website ([www.eattheweeds.com](http://www.eattheweeds.com)).





# shindi: the Cornelian cherry

The Cornelian cherry – shindi in Georgian – was grown from ancient times, according to the International Society for Horticultural Science (ISHS). It is also commonly called the European cornel. It is native to southern Europe from France to Ukraine as well as Armenia, Azerbaijan, Georgia, Iran, Turkey, Israel, Lebanon, and Syria. The Cornelian cherry tree (*Cornus mas*) can be grown in orchards, but it is often seen in the forests of Georgia where it grows up to 1,350 metres above sea level.

The *Cornus mas* is a medium to large deciduous tree, growing from 5-12 metres tall (16-40 feet). The flowers are small with four yellow petals in clusters, which flower in February and March.

The fruits are oblong red drupes about 2 centimetres long and 1.5 centimetres wide (less than an inch), which ripen from August to October. The ISHS indicates that the Cornelian cherry from Georgia weighs between 1.1 to 5.6 grams, with 8.5% to 9.2% total sugar content, with an acidity from 1.7% to 2.3%, pectin from 0.9% to 1.1%, and vitamin C from 50.5 to 128.0 mg/100 grams. The fruit is edible, but it is very tart, tasting like a mixture between a cranberry and a sour cherry. The high vitamin C content makes it medicinal for mitigating colds and flu.



# seed bank partnership

In partnership with the Royal Botanic Gardens in Kew, England, the NBGG aims to safeguard wild plant diversity. Plant diversity exists in algae, liverworts, mosses, ferns and seed-bearing species.

Plants are essential for human and animal life because they alone capture energy from the sun and convert it into food in the form of their seeds, leaves and roots. Plants also provide medicines, building materials, and fuel. They are central to many ecological processes such as climate regulation, soil fertility, and the purification of water and air.

Seed banks conserve large amounts of plant diversity, cheaply and effectively. NBGG established the Caucasus Regional Seeds Bank as part of their partnership with Kew Gardens, the largest repository of seeds in the world.

Kew Gardens works with 80 countries. It has successfully banked over 13% of the world's wild plant species. The aim is to collect 25% of 75,000 species with bankable seeds by 2020 with a priority on species from mountain, dry land, coastal, and island environments.

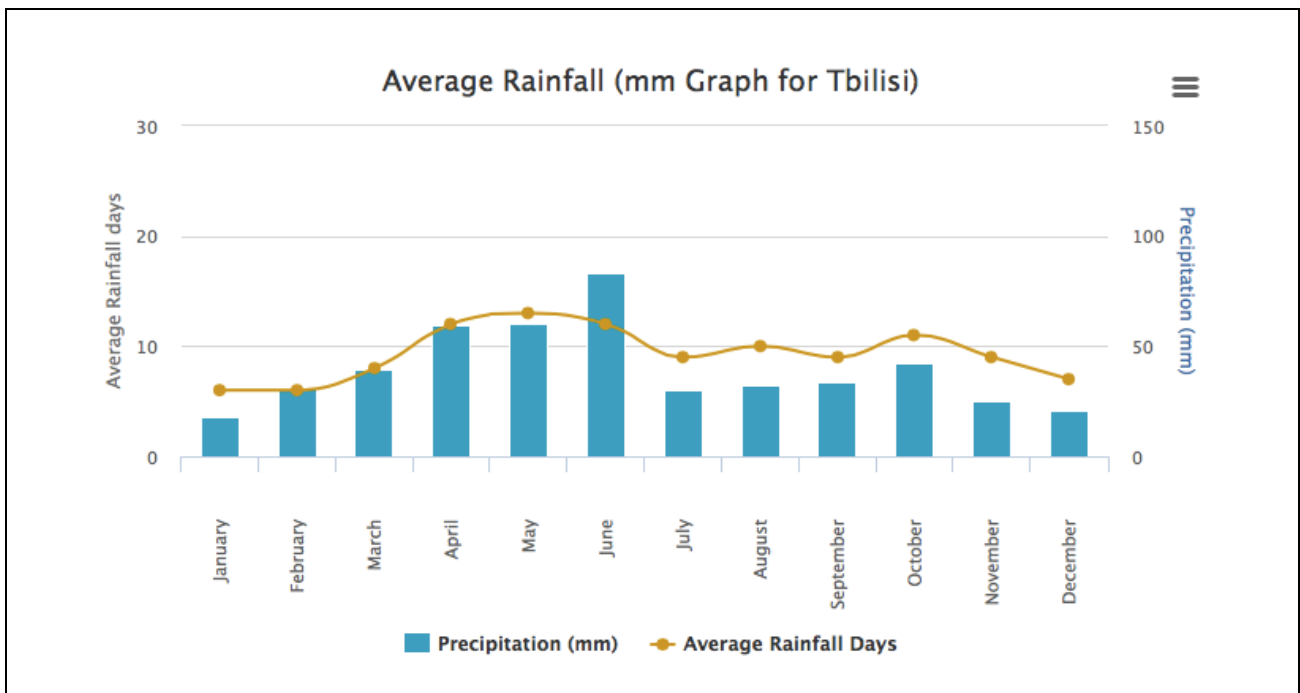




# water and rain

The National Botanical Garden of Georgia is located in the south of Sololaki Ridge in the gorge of Tsavkis River, or Leghvta water. Located in the garden are waterfalls. A series of water pipes, ducts, and channels also run through the garden.

The graph from World Weather Online shows the average rainfall in Tbilisi. June is the wettest month in Tbilisi, and January is the driest month.



# *waterfall*



**There is a waterfall in every dream. Cool and crystal clear, it falls gently on the sleeper, cleansing the mind and soothing the soul.**

**Virginia Alison**



# structures

The National Botanical Garden of Georgia groundspeople are continuously upgrading and renovating buildings, paving new paths, building wooden or stones steps, and installing signs.



# *bridges*





# *glasshouses*





# *structures*





# *statues*



# *mother of Georgia*





# walls





# *pews*





# *steps*



# fauna

Flora represents the diversity of plants, trees, and vegetation in the park. Fauna is the term that represents all animals. The National Botanical Garden of Georgia has a wide range of fauna in addition to the native Caucasian Parsley Frogs. For example, the garden has birds, turtles, dragonflies, beetles, bees, butterflies, spiders, lizards, cats and dogs, and even snakes.





# the Caucasus Parsley Frog

Georgia has eleven species of amphibians – toads and frogs – but most of them are frogs. Unlike toads, which have a stumpy body, short legs, webless feet with separate toes, dry leathery skin, and warty rough skin, frogs have bulging eyes, no tails, a longer slender body, webbed hind feet, powerful long legs, and smooth moist skin. Frogs prefer shady, damp areas with fresh water sources and dense vegetation.

The frogs in the NBGG are Caucasian Parsley Frogs (*Pelodytes caucasicus*) because they have distinctive green markings on their backs in the shape of parsley leaves. They mate in June and by August the tadpoles become thumb-sized frogs, eventually growing to the size of a person's hand.

Caucasian Parsley Frogs are only found in the Caucasus region (the Ciscaucasus and Transcaucasus), which is situated between the Black Sea and the Caspian Sea, encompassing the Caucasus Mountains, southwest Russia, Georgia, Armenia, and Azerbaijan.

The Caucasus is included in the list of 34 world biodiversity hotspots. The Caucasian Parsley Frog is a relict species, which means that it is a species that lives in a smaller geographic area than it did in the past. Relict literally means 'left undisturbed.'



# *tadpoles to frogs*





# swifts and swallows

Georgia has three species of swifts (order Apodiformes, family Apodidae): the alpine swift (*Tachymarptis melba*), the common swift (*Apus apus*), and the pallid swift (*Apus pallidus*). Georgia also has four species of swallows and martins (order Passeriformes, family Hirundinidae), which are similar to swifts, but they have slender bodies, longer pointed wings, and shorter bills. The four species of swallows and martins in Georgia are the sand martin (*Riparia riparia*), the Eurasian crag martin (*Ptyonoprogne rupestris*), the common house martin (*Delichon urbicum*), and the barn swallow (*Hirundo rustica*)

Barn swallows are extremely widespread and found in Europe, Asia, Africa, and the Americas. The *Hirundo rustica* species (meaning ‘rural swallows’) have rusty-red coloured throats with steel-blue feathers and off-white under-feathers. They grow to about 17 centimetres long (6.7 inches) including their tails of 2-7 centimetres (0.8-2.8 inches). Their wingspan is about 32 centimetres in length (12.6 inches).

They breed in the Northern Hemisphere from sea level up to 3,000 metres (9,800 feet). They are not particularly fast, but they are extremely manoeuvrable, feeding on flying insects while in flight. They are communal birds, flying in groups. Females lay 2-7 white eggs with reddish spots. The female looks after the nest for 14-19 days, and when the eggs hatch the young birds take about 18-23 days before they can fly.



# *birds*





# the Caucasian Helix

Levan Mumladze from the Invertebrate Research Centre of the Institute of Ecology at the Ilia State University in Tbilisi, Georgia, wrote an article on the 'Species of the Genus *Helix* (Mollusca, Gastropoda) in Georgia' in the 2015 Proceedings of the Institute of Zoology. Mumladze states that there are four species of *Helix* in the Caucasus. Two of them also occur outside the Caucasus - the *Helix lucorum* and *Helix albescens* - but two Buchi's snails are Caucasian endemics: the *Helix buchii* and the *Helix goderdziana* (Goderdzi's snail).

Pictured here is the *Helix lucorum*, the Garden or Turkish snail. Although it is frequent around settlements, it is rare in the wild, where it lives in limestone rocks - and sighted in Georgia from at least the 1940s. It prefers the humid areas, and not the mountain forests, subalpine areas, or dry lowlands. It has been classified on the International Union for Conservation of Nature (IUCN) Red List as Least Concern because the numbers are not in decline.



# *butterflies*





# hummingbird hawk moth

Spotted in the National Botanical Garden of Georgia in Tbilisi was a hummingbird hawk moth. The hummingbird hawk moth (*Macroglossum stellatarum*) is from the Sphingidae family of moths. It looks like a tiny hummingbird because it hovers around plants. It can be found in Europe and Asia, from Portugal to Japan, especially in summer, but is resident in the warm climates of southern Europe.

The moths begin as pale green round eggs and hatch 6-8 days after laying. One female hummingbird hawk moth can lay up to 200 eggs. The hatched larvae are yellow then turn into green caterpillars, usually after about 20 days.

The hummingbird hawk moth has brown forewings with black lines and orange-yellow hind wings with a black edge. The wingspan is 4 to 4.5 centimetres (1.6 to 1.8 inches). The abdomen is broad with a short fan-tail. It has a long proboscis (sucking nose), which it inserts into flowers to suck up the nectar. Like a hummingbird, it makes a slight humming sound. Unlike most moths, the hummingbird hawk moth flies during the day time, and likes bright sunshine, but it also flies at dawn and dusk.

Hummingbird hawk moths are considered to be a lucky omen.





# *bees & bugs*





# *spiders & snakes*





# *cats*





# *people*





## views

The National Botanical Garden of Georgia has stunning views of the Sololaki Ridge and the city of Tbilisi. Within the garden are views of waterfalls, cliff faces, rivers, expanses of vegetation and trees, and winding pathways, with ample seating to admire the views.





*views*





## *views 2*





# the author: Martina Nicolls

I am an author and humanitarian aid consultant with over 30 years' experience in the management, implementation, and evaluation of international aid development projects, particularly in post-conflict environments and countries with transitional governments, such as Somalia, South Sudan, Sudan and Darfur, Afghanistan, Kashmir, Pakistan, Iraq, Liberia, Sierra Leone, Georgia, Kosovo, Rwanda, and Sri Lanka, and also Mauritius, Mongolia, Papua New Guinea, Thailand, Vietnam, Cambodia – and others. I provide technical advice on areas such as peace-building and conflict mitigation, education, poverty reduction, human rights, child labour, data quality and financing models.

But mostly I am a wanderer. Wherever I am and wherever I go I take photographs and I write. My books include:

A Mongolian Lament (2015)  
The Komodo Verses (2012)  
Liberia's Deadeast Ends (2012)

Bardot's Comet (2011)  
Kashmir on a Knife-Edge (2010)  
The Sudan Curse (2009)

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