

Julia Horton

A VOYAGE to the Cradle of Storms to find a mysterious plant sounds more like a plotline for a Hollywood adventure film than a serious scientific endeavour.

However, a Scottish evolutionary biologist is to set off today on an epic trip to the wilds of the Aleutian Islands in Alaska to try to find the elusive monkey flower.

Mario Vallejo-Marin is retracing the steps of 19th-century Russian-German naturalist Grigori von Langsdorff, one of the first explorers to reach the remote archipelago. The isles were called the Cradle of Storms because of their remote location in the treacherous waters where the Bering Sea meets the Pacific.

Like von Langsdorff, Vallejo-Marin will risk encountering the kodiak, the world's biggest bear, but the Stirling University academic will be armed with pepper spray rather than guns as he makes the journey by air, land and sea.

Vallejo-Marin expects to find proof that a new species of monkey flower, which he recently found growing in Scotland, originates from the archipelago. Von Langsdorff is thought to have discovered the colourful plant and brought it back to Europe.

If he finds the flower, Vallejo-Marin will use genetic analysis to try to prove an evolutionary theory first proposed by Charles Darwin: that invasive species adapt through natural selection more rapidly than native rivals, in order to thrive in alien environments.

Speaking before the three-week trip, funded by the National Geographic Society, Vallejo-Marin said: "Alaska would be a challenge. I've been warned to prepare for lots of rain, strong wind and unpredictable travel conditions."

"I'm going to look for the ancestors of the monkey flower which I found in Scotland, and which we think came originally from Alaska, where von Langsdorff's travel diaries record him finding it on the main island of Unalaska. Later he gave some of the specimens



Alaska trip to find elusive flower link

Vallejo-Marin, below left, will search for the monkey flower, inset above left, on the Aleutian Islands, and may bump into the kodiak bear, inset above

he collected to botanical gardens in Europe, after which we think they spread.

"I'll be on Unalaska for about a week during the trip, trekking and camping for a few days at a time with three other scientists. The area is also famous for kodiak bears so we'll have bear spray, which is like a pepper spray. If they charge you're in trouble, and you have to fight back if they bite. I'm a bit nervous but mostly excited."

"We know the flowers have evolved, but we don't know at the moment if that happened in



Scotland [he found them in South Lanarkshire and Orkney] or somewhere else [before they got here].

"It's very hard to prove evolution in invasive species, but if we're able to find their source we'll have the 'before and after' of the plant, so we can use genetic analysis to find out."

Von Langsdorff travelled to the Aleutians at the start of the 19th century after taking part in a pioneering Russian round-the-world scientific expedition over two years.

His travel diaries describe

the "formidable" conditions off Unalaska, with high seas, heavy fog and hazardous reefs threatening the ship, which was manned by "adventurers, drunkards and branded criminals in search of fortune", lured by the booming fur trade.

Vallejo-Marin will fly from Scotland to Alaska and then join the team to travel by seaplane. He will spend several days island-hopping through the Aleutians on a ferry, stopping to collect samples of species, before arriving at Unalaska.

The research group will be accompanied by a cameraman from the National Geographic Society and will carry gear including a satellite phone for emergencies, flower presses and heavy silica gel to use as a drying agent for specimens.

Dave Schacht, the society's vice-president of regional programmes, said: "The research by Dr Vallejo-Marin embodies the society's commitment to science and exploration. We're excited to see what his expedition in Alaska reveals."

Seaweed could hold key to carbon capture

FARMING seaweed around Scotland's coastline could play a key role in meeting national climate change targets, according to conservationists, writes Julia Horton.

While traditional cattle farms have long been blamed for making global warming worse, because of the methane gas that cows produce, kelp absorbs significant amounts of greenhouse gases.

A report by the Scottish Wildlife Trust (SWT) calls on the Scottish government, academics and the aquaculture industry to explore seaweed cultivation to reap the benefits of the plant's ability to store carbon.

The proposal is one of a number made by the trust on the huge but largely unknown potential of so-called "blue carbon", which is the natural store in the marine environment.

Research commissioned by national government agency Scottish Natural Heritage published in 2014 estimated that kelp forests could hold nearly 2m tons of carbon a year, while the seabed could store more than 2bn tons, significantly more than the 1.6bn tons in peatland.

However, comprehensive up to date figures on the capacity of blue carbon in Scottish waters are limited, prompting the trust to call for proper monitoring and more work to ensure that the marine environment is adequately protected to help meet the Scottish government's targets.

Setting out the wider benefits that marine farms could bring, the paper states: "Seaweed cultivation

has the potential to sequester large volumes of blue carbon quickly while improving water quality, providing habitats for marine species, increasing employment and producing carbon-neutral products."

The potential for seaweed should be "investigated further and, where possible, supported," the paper adds.

Its author, Sam Collin, an SWT marine planning officer, said: "This is our first report on blue carbon, which we produced because while you hear a lot about the carbon storage in peatland, and how planting trees is good for meeting



Seaweed at Cleddale, Eigg

climate change targets, there isn't much talk about the storage capacity in the marine environment.

"Our kelp forests, maerl beds [of coral-like seaweed] and seagrasses contribute too and Scotland's seas are huge compared to the land mass, so we'd expect their capacity to absorb carbon to be greater."

The trust is backed by the Scottish Association for Marine Science, Scotland's largest independent ocean research body.

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