

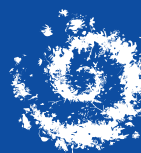
### ➤ Global warming: the beginning of the end

An annual plant left over from the ice age, the snow gentian is increasingly at risk **from the consequences of global warming**. Drought can perturb the plant's development and seed production. If this phenomenon reoccurs, the reserves of seeds in the soil are not renewed and become exhausted, endangering the species' survival. The prospects of reducing this risk of extinction by stopping global warming seem very slim. This context can only encourage us not to add other pressures on this species, connected to tourism and farming activities: Being trampled by people or animals or buried under animal droppings, etc.



### Expert opinion

- 1/ **FALSE**. There are also yellow, pink and light blue gentians.
- 2/ **FALSE**. They grow in Alpine grasslands.
- 3/ **TRUE**. Annual plants only represent 2 % of Alpine flora.



## The snow gentian



Family: Gentianaceae  
Height: 3 to 15 cm  
Flower (diameter): 8 to 12 cm  
Flowering: July and august  
Altitude: 1 600 m to 3 000 m

### Distinctive features

- ✓ Annual plant
- ✓ Basal rosette of leaves that dry on flowering
- ✓ Stem that branches from the base

## Distribution

### ➤ Finding refuge in the Vanoise

It is quite easy to see snow gentians in the Vanoise: they can be found in practically every commune in the massif. Elsewhere in France, they are found in the other Alpine departments as well as in the Pyrenees where they are rarer. They have not been seen in the mountains of the Jura since the heatwave in 2003.

More widely, they are known in the European mountains as well as in the Nordic regions. These species that currently have a disjunct distribution area between the high-altitude mountains in temperate climates and the Nordic regions are referred to as **Arctic-Alpine**. They found a refuge in the high mountains some 12000 years ago, at the end of the last ice age. **70 Arctic-Alpine species can be found in the Vanoise** among the flowering plants and the ferns.



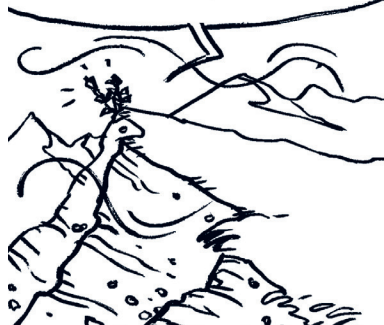
## Habitat

### ➤ On the Alpine ridges

Snow gentians can be observed in the Vanoise at altitudes of 1 600 m to 3,000 m. Over half of the sightings are located above 2 500 m. It is therefore preferentially an Alpine plant. It typically grows on grassy summits and **ridges**, where there are small openings

PAS MAL LA VUE ! ÇA DÉCOIFFE !

in the plant cover where its seeds can germinate. It prefers environments that are neither too dry nor too wet and substrata that are neither too basic nor too acidic: It is a "mesophilic" plant from the greek "mesos" meaning "middle" and "philos" meaning "love".



## Adaptation

### ➤ Annual, rapid and prolific!

Without any cushion-like growth, spectacular reduction of the vegetative organs or overdeveloped pilosity, it is legitimate to wonder how this gentian adapts to life at altitude. Especially as its annual character is an exception: barely 2 % of Alpine flora are annuals. The very short period of vegetation at altitude is a major constraint. During the short weeks of the Alpine summer, the plants must germinate, develop, produce flowers, be pollinated and finally mature and spread their seeds. Snow gentians grow very rapidly and produce large quantities of seeds. The plant species that survive winter only as seeds are called **therophytes**. There is another annual gentian in the Vanoise: **gentiana utriculosa**, which can be distinguished by its calyx\* that has a wide wing at each corner. The calyx of the snow gentian has hardly any wing.

\*Outer basal envelope of the flower that is often green



True or false? *Answers: on the last page*

- 1/ All gentians are blue (like the Park's logo).
- 2/ The snow gentian only grows on snow.
- 3/ Annual plants are very much a minority at altitude.